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**Immediate Response Action
Completion Report, Method 3 Risk
Characterization, and Class B-1
Response Action Outcome Statement**

MBTA Storm Drain – Washington Street
Somerville, Massachusetts

Submitted to:

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October 15, 2009

Project 04516-3

A large, stylized handwritten signature in black ink, consisting of several loops and a long horizontal stroke.

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Vice President

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Executive Summary

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. (GEI) prepared this Immediate Response Action (IRA) Completion Report, Method 3 Risk Characterization, and Response Action Outcome (RAO) Statement for the release of chlorinated volatile organic compounds (VOCs) in groundwater into the Massachusetts Bay Transportation Authority (MBTA) storm drain catch basins on Washington Street in Somerville, Massachusetts (the Storm Drain Site, Fig. 1).

Background

Chlorinated VOCs were detected in MBTA storm drains during site investigations associated with the 50 Tufts Street Site (Release Tracking Number (RTN) 3-23246). In a letter dated June 25, 2008, the Massachusetts Department of Environmental Protection (DEP) requested that UniFirst investigate whether groundwater at the 50 Tufts Street Site containing VOCs may be infiltrating into the MBTA storm drain system and flowing to the Millers River. GEI conducted the requested investigation, and concluded that:

- VOCs may be entering the MBTA storm drain as a result of groundwater infiltration at the storm drain catch basins on Washington Street (Fig. 2); and
- There is a potential for concentrations of VOCs to be detected in the Millers River.

GEI conducted an evaluation of the storm drain system and on December 19, 2008, GEI reported to DEP a potential Condition of Substantial Release Migration (SRM) and UniFirst's intent to conduct an IRA. DEP assigned RTN 3-28231 to the reported release condition.

IRA Activities and Completion Statement

GEI conducted an IRA: (1) to evaluate the potential for groundwater contaminated with chlorinated VOCs to infiltrate the storm drain system; (2) to assess the magnitude and extent of any VOCs infiltrating the storm drain system; and (3) to determine what, if any, measures are to be undertaken to mitigate infiltration. We prepared this IRA Completion Report because the IRA activities have been completed.

Method 3 Risk Characterization

A Method 3 Risk Characterization was conducted by AMEC Earth and Environmental (AMEC) of Westford, Massachusetts, to evaluate risks associated with the chlorinated VOCs

detected in water and solids within the storm drain system at the Storm Drain Site, and the potential discharge of water containing chlorinated VOCs to the Millers River. Based on the Method 3 Risk Characterization, a condition of “No Significant Risk” of harm to human health, safety, public welfare, and the environment exists at the Storm Drain Site, and an Activity and Use Limitation (AUL) is not required to maintain a condition of “No Significant Risk” pursuant to the Massachusetts Contingency Plan (MCP).

RAO Statement

It is our opinion that a Class B-1 RAO is appropriate for the Site because:

- The IRA is complete.
- A Permanent Solution has been achieved.
- A level of “No Significant Risk” exists.
- Remedial actions have not been conducted because a level of “No Significant Risk” exists.
- An AUL is not required to maintain the level of “No Significant Risk.”

1. Introduction

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. prepared this Immediate Response Action (IRA) Completion Report, Method 3 Risk Characterization, and Class B-1 Response Action Outcome (RAO) Statement (the Report) for the release of chlorinated volatile organic compounds (VOCs; particularly tetrachloroethylene [PCE]) into a portion of the Massachusetts Bay Transportation Authority (MBTA) storm drain system including catch basins on Washington Street in Somerville, Massachusetts (the Storm Drain Site; Fig. 1). The Storm Drain Site is located partially within the 50 Tufts Street Site (Release Tracking Number (RTN) 3-23246). The MBTA storm drain system discharges to an unnamed tributary of the Charles River locally known as Millers River (Fig. 2). AMEC Earth & Environmental (AMEC) of Westford, Massachusetts prepared a Method 3 Risk Characterization for the Storm Drain Site, which is included in this report as Appendix E. The Storm Drain Site was assigned RTN 3-28231 by the Massachusetts Department of Environmental Protection (DEP).

This IRA Completion Report, Method 3 Risk Characterization, and RAO Statement were prepared to satisfy the requirements of the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000).

1.1 Background

Chlorinated VOCs were detected in MBTA storm drains (Tables 1 and 2) during site investigations associated with the 50 Tufts Street Site, which DEP has assigned RTN 3-23246. In a letter dated June 25, 2008, DEP requested that UniFirst investigate whether groundwater at the 50 Tufts Street Site containing chlorinated VOCs may be infiltrating the MBTA storm drain system and flowing to the Millers River. GEI conducted the requested investigation and concluded that:

- VOCs may be entering the MBTA storm drain system as a result of groundwater infiltration, particularly at the storm drain catch basins on Washington Street (Fig. 3).
- There is a potential for concentrations of VOCs to be detected in the Millers River (Fig. 4).

On December 19, 2008, GEI reported to DEP a potential Condition of Substantial Release Migration (SRM) and UniFirst's intent to conduct an IRA. DEP assigned RTN 3-28231 to the release and approved the following IRA activities:

- Evaluating the condition of the MBTA storm drain system, including the catch basins on Washington Street.
- Evaluating whether, and to what extent, groundwater is infiltrating the MBTA storm drain system and catch basins on Washington Street.
- Evaluating mitigation options to reduce, if feasible, the potential for groundwater to enter the MBTA storm drain system, including the catch basins on Washington Street.

1.2 Purpose

The purpose of this Report is to:

- Summarize the response actions performed at the Storm Drain Site.
- Prepare a Method 3 Risk Characterization to evaluate whether or not conditions at the Storm Drain Site pose a level of “No Significant Risk.”
- Provide an IRA Completion Statement for the release.
- Provide a Class B-1 RAO Statement.

1.3 Scope

The activities performed as part of this IRA included:

- Reviewing information regarding the conditions and history of the Storm Drain Site.
- Evaluating whether, and to what extent, groundwater infiltration occurs into the MBTA catch basins on Washington Street.
- Evaluating whether VOCs are potentially being discharged to the Millers River.
- Preparing a Method 3 Risk Characterization to evaluate the risk of harm posed by the Storm Drain Site to human health, public safety, welfare, and the environment.
- Preparing this report.

1.4 Submittals

The original IRA Completion Report Form (BWSC-105) and RAO Form (BWSC-104) were submitted online via eDEP and copies are in Appendix A.

As required by 310 CMR 40.1403(3)(f), we prepared letters to the City of Somerville’s, City of Cambridge’s, and the City of Boston’s Chief Municipal Officers (Environmental Coordinators) and their Health Departments notifying them of the availability of the

Class B-1 RAO. Copies of the public notification letters are in Appendix B. An RAO fee has been submitted to the DEP's lock box.

1.5 Conceptual Site Model

The Storm Drain Site consists of a portion of the MBTA storm drain system including storm drains in the vicinity of the 50 Tufts Street Site (Fig. 2), passing through the Massachusetts Bay Commuter Rail (MBCR) Maintenance Yard, and ultimately discharging to the Millers River in Cambridge, Massachusetts. The Storm Drain Site also includes the catch basins located near the railroad overpass on Washington Street in Somerville, Massachusetts (Fig. 2). The MBTA storm drain system was reportedly constructed in the 1920's.

Chlorinated VOCs, particularly PCE, were measured in the storm drain which collects water from a section of the railroad right of way (ROW) that passes to the west and south of the 50 Tufts Street property and in the storm water catch basins in Washington Street. The catch basins collect storm water and groundwater. The storm water and groundwater in the catch basins (U6) are pumped via a pump station (U4) to a higher elevation and combine with storm water collected in the ROW storm drain in a manhole (U5) south of the pump station. The combined water flows by gravity through the rest of the system, including an oil/water separator (OWS) (U10), to the outfall on the Millers River (U12).

Based on the impacted media, potential receptors that could be exposed to Storm Drain Site contaminants include municipal/utility workers and child/teenage trespassers, and potential environmental receptors in the Millers River.

2. Site Description (310 CMR 40.0427(4)(a))

2.1 Site Location and Description

The Storm Drain Site consists of the portion of the MBTA storm drain system that runs along the railroad tracks south of Tufts Street, crosses Washington Street, continues along New Washington Street through the MBCR Maintenance Yard to the OWS, and discharges to the Millers River (Fig. 2). The Millers River is a tributary of the Charles River on the border of Cambridge and Charlestown, Massachusetts (Fig. 4). The Universal Transverse Mercator (UTM) coordinates are 4,694,169 mN and 328,068 mE. The Storm Drain Site is primarily located in Somerville, but a small portion passes through Charlestown (Boston) and then Cambridge.

The Storm Drain Site is approximately 1.25 miles long, and includes the interior of the storm drain system and the point of discharge to the Millers River.

The MBTA storm drain collects storm water from the railroad ROW that passes to the west and south of the 50 Tufts Street property. The catch basins in Washington Street, located beneath an MBTA train bridge, collect both storm water and groundwater.

2.2 Surrounding Land Use

The storm drain abuts or passes through a commercial and residential district in Somerville and a portion of Charlestown and Cambridge:

- The western portion of the storm drain abuts the MBTA ROW adjacent to the 50 Tufts Street property. Residences are located north of Tufts Street.
- The storm drain continues easterly across Washington Street and beneath the MBTA Railroad Bridge.
- The storm drain continues northerly along New Washington Street through a commercial district and then easterly through the MBCR Maintenance Yard.
- Beyond the Maintenance Yard, the storm drain discharges to the Millers River in Cambridge.

2.3 Natural Resource Areas

Based on our review of the Massachusetts Geographical Information System (MassGIS) Natural Resources Map for the Boston-North Quadrangle (Figs. 3 and 4) and the Massachusetts Natural Heritage Atlas (11th edition), the environmental setting and potential sensitive receptors of the Storm Drain Site and its vicinity, in accordance with the criteria set forth in the MCP, includes:

- Residential Population: The Storm Drain Site is in an urban area and the estimated residential population within one-mile is greater than 1,000. The Storm Drain Site is not being used for residential purposes.
- On-Site Workers: There are no workers currently at the Storm Drain Site.
- Institutions: There are no institutions, as defined by the MCP, that were identified within 500 feet of the Storm Drain Site.
- Drinking Water Supplies: The Storm Drain Site is not located within a DEP-approved Wellhead Protection Area (WPA) (Zone II Area), DEP-interim WPA, or a potentially productive aquifer (PPA), and there are no public water supplies within 500 feet of the Storm Drain Site. According to the City of Somerville Board of Health, the City of Boston Environmental Health Department of the Public Health Commission, and the City of Cambridge Public Health Department, there are no private drinking water wells within 500 feet of the Storm Drain Site.
- Surface Waters and Wetlands: The MBTA storm drain system making up the Storm Drain Site discharges into the Millers River on the border of Cambridge and Boston, Massachusetts.
- Fish Habitat: There is no known Fish Habitat within 500 feet of the Storm Drain Site. The Millers River does not appear to be a Fish Habitat. According to the 1998 report “Millers River Preliminary Assessment and Risk Characterization: Somerville/Cambridge Massachusetts,” by GZA GeoEnvironmental, Inc. (GZA) of Norwood, Massachusetts, no fish were found as a result of electro-fishing (GZA, 1998).
- Area of Critical Environmental Concern (ACEC): According to the MassGIS map, the Storm Drain Site is not located in an ACEC.
- Threatened or Endangered Species: According to the MassGIS map, there are no Natural Heritage and Endangered Species Program Estimated Habitats for Rare Wetlands Wildlife within 500 feet of the Storm Drain Site. According to the Massachusetts Natural Heritage Atlas, there are no priority habitats of rare species, estimated habitats of rare wildlife, or certified vernal pools within 500 feet of the

Storm Drain Site.

- Protected Open Space: There are no Protected and Recreational Open Spaces that were identified within 500 feet of the Storm Drain Site.

3. Immediate Response Action (310 CMR 40.0427(4)(b)(c)(d))

3.1 Initial Storm Drain System Sampling

GEI initially sampled water in the MBTA storm drain catch basins in Washington Street in March and April 2008 (Table 1) as part of ongoing IRA activities at the 50 Tufts Street Site. Chlorinated VOCs, and in particular PCE, were detected in three storm drain catch basins on Washington Street underneath the MBTA train bridge (catch basins U6-CB19, U6-CB33, and U6-CB34) (Figs. 5 and 6). Concentrations of PCE detected in the catch basin samples were between 406 and 5,170 micrograms per liter ($\mu\text{g/L}$) (Table 1).

Catch basins U6-CB19 and U6-CB20 are located on the north side of Washington Street, and U6-CB33 and U6-CB34 are located on the south side (Fig. 6). U6-CB19 is connected to U6-CB33 and U6-CB20 is connected to U6-CB34; in turn, U6-CB33 and U6-CB34 are connected (Fig. 6). U6-CB33, which collects the flow from the other catch basins upstream of it, discharges to a manhole just upstream of an MBTA pump station. The flow from the storm drain catch basins enters the pump station, is pumped to a higher elevation, and combines at manhole U5 (Fig. 6) with water collected from the MBTA railroad ROW passing to the west and south of the 50 Tufts Street Site. The storm drain system then continues up New Washington Street, through the MBCR Maintenance Yard and the OWS, and finally discharges to the Millers River.

The OWS operator reported that the outlet of the OWS into the Millers River is submerged. Access to the Millers River was not granted to GEI and we were unable to collect samples from the discharge outlet. Therefore, for purposes of this evaluation, samples collected from the outfall pipe of the OWS (U10, Fig. 5) in the MBCR rail-yard were assumed to be representative of both the OWS and the Millers River outlet. Location U10 is located approximately 400 feet upstream from the discharge outlet (U12, Fig. 5).

GEI reported these results to DEP in a letter dated April 25, 2008. DEP indicated in a letter to UniFirst dated June 25, 2008 that storm drain water sampling and testing conducted by the MBTA pursuant to its U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) permit detected PCE in the MBTA storm drains between the Washington Street catch basins and Millers River, and in the outfall to the Millers River (U12, Fig. 7). DEP required UniFirst to evaluate the potential for the chlorinated VOCs to be originating from the 50 Tufts Street Site.

3.2 Evaluation of Potential Condition of Substantial Release Migration

GEI conducted the requested investigation to evaluate whether chlorinated VOCs from the 50 Tufts Street Site had the potential to be discharged to the Millers River through the MBTA storm drain system. Once the MBTA granted access to its ROW, GEI conducted field reconnaissance to identify accessible sampling locations in the MBTA storm drain system in the vicinity of the Storm Drain Site (Figs. 5 and 6). GEI then conducted dry and wet weather storm drain water sampling and testing in October and November 2008, respectively. Water samples were collected along the storm drain system, upstream, midstream, and downstream (relative to flow in the storm drain system) of the 50 Tufts Street Site. GEI conducted sampling under both dry and wet weather conditions to evaluate potential variations in flow and VOC concentrations. Storm drain water samples were also collected in Charlestown to evaluate whether other potential sources of chlorinated VOCs may discharge to the Millers River. Chlorinated VOCs, particularly PCE, were measured in the water samples collected from the MBTA storm drain system (ranging from $< 1.0 \mu\text{g/L}$ to $3,680 \mu\text{g/L}$ in dry weather) and the OWS ($< 27.4 \mu\text{g/L}$ in dry weather), which is upstream of the Millers River. The sampling locations are shown on Fig. 6 and the results are presented in Table 1 and Fig. 5.

The results of our investigation were documented in our report, “MBTA Storm Drain Water Evaluation Sampling Results, 50 Tufts Street, Somerville, Massachusetts,” dated January 9, 2009. Our report was provided to the MBTA and DEP.

Chlorinated VOCs were detected at nearly identical concentrations at two locations (U1 and U2, Fig. 5) within the storm drain located west of Tufts Street. However, these locations are upgradient of the release of chlorinated VOCs associated with RTN 3-23246. Based on these testing results, the chlorinated VOCs detected at U1 and U2 are not believed to be related to either the 50 Tufts Street Site or the Storm Drain Site.

During our evaluation of the potential Condition of SRM, we collected samples from catch basins located along storm drain lines that are not part of the Storm Drain Site. The purpose of sampling these other storm drain lines was to identify the potential for contributions of PCE to the Millers River from sources not associated with the Storm Drain Site.

We sampled the following storm drain locations that are not located within the Storm Drain Site:

- Storm drain manholes in Charlestown (locations U13, U14, and U15 shown on Figs. 5 and 6), and

- Storm drain manholes along the Fitchburg Commuter Rail Line (locations U9 and U11 shown on Figs. 6 and 7).

PCE was only detected at location U14 (2.5 to 3.4 µg/L), as shown on Fig. 5. Because these locations are not part of the Storm Drain Site, these data were not included in the Method 3 Risk Assessment.

The investigation concluded that:

- Chlorinated VOCs may be entering the MBTA storm drain as a result of groundwater infiltration at the storm drain catch basins on Washington Street.
- There is a potential for concentrations of VOCs to be detected in the Millers River above laboratory reporting limits which represented a potential Condition of SRM.

A Condition of SRM is a 72-hour reporting condition pursuant to the MCP. On behalf of UniFirst, GEI notified DEP of the potential Condition of SRM on December 19, 2008.

3.3 IRA Plan

GEI submitted an IRA Plan to DEP on February 16, 2009. The IRA Plan focused on the catch basins in Washington Street, since they were considered the most likely source of infiltration of contaminated groundwater into the storm drain system. The objectives of the IRA were to:

- Evaluate the condition of the MBTA storm drain catch basins and associated piping (if necessary) on Washington Street.
- Evaluate whether, and to what extent, groundwater is infiltrating the MBTA storm drain catch basins on Washington Street.
- Evaluate mitigation options to reduce, if feasible, the potential for groundwater to enter the MBTA storm drain catch basins on Washington Street.

3.4 Response Actions (310 CMR 40.0427(4)(b))

3.4.1 Catch Basin Evaluation

Four MBTA catch basins (U6-CB19, U6-CB20, U6-CB33, and U6-CB34) are located on Washington Street, beneath the MBTA railroad bridge. The catch basin locations are shown on Fig. 6, and previous water sampling locations and testing results are shown on Figs. 5 and 7 and Table 1. Historical data collected by the MBTA and the EPA are shown on Fig. 7.

3.4.1.1 Solids Removal

Prior to evaluating the condition of the catch basins and the potential for groundwater infiltration into the catch basins, GEI arranged for the removal of accumulated solids and some standing water from the catch basins. Prior to removing the solids, GEI sampled the solids on April 22, 2009, and submitted the samples for chemical testing for VOCs. The results are shown in Table 2 and the laboratory data reports are included in Appendix C. PCE was detected above laboratory reporting limits in three of the four solids samples (Table 2).

On May 1, 2009, GEI observed TMC Services, Inc. (TMC) of Bellingham, Massachusetts remove the accumulated solids and water in the catch basins. TMC removed 11.19 tons of solids and 600 gallons of water from the storm drain catch basins.

During the removal of water and solids from the storm drain catch basins, GEI observed groundwater entering the catch basins. The groundwater infiltration rate was greatest into U6-CB20 and U6-CB19, which are both on the north side of Washington Street (Fig. 6). We observed groundwater entering U6-CB33 and U6-CB34 at a much lower rate, mainly from the area around the inverts running beneath Washington Street. These inverts, which connect U6-CB19 to U6-CB33 and U6-CB20 to U6-CB34, appeared to be partially filled with solids as well, which were not removed. A flux of approximately 4 gallons per minute (gal/min) was measured from the invert connecting U6-CB19 to U6-CB33.

3.4.1.2 Assessment of Infiltration

Accumulated solids were removed from the four MBTA storm drain catch basins to evaluate the potential for groundwater infiltration. We observed groundwater seeping into the catch basins as the accumulated solids and water were being removed on May 1, 2009.

As described previously, the MBTA storm drain system on Washington Street consists of a series of storm drain catch basins, a pump house, and associated piping. Water, entering the catch basins, flows by gravity to the pump station. Float switches in the pump house activate the pumps.

Between May 20 and May 22, 2009, during a period of no precipitation, the MBTA raised the float switches above the elevation of the catch basin rims, effectively turning off the pumps in the pumping station. We observed water gradually rising in the catch basins to the elevation of the catch basin rims/road surface, and then the MBTA lowered the float switches to the previously established elevations and resumed pumping. Our observation indicates that the pump station float switch levels control the water levels in the catch basins during

both wet and dry weather, and that the natural groundwater level is likely above the elevation of the road surface at the MBTA bridge underpass.

3.4.2 *Evaluation of Mitigation Alternatives*

Mitigation alternatives to achieve No Significant Risk were not evaluated, since the Risk Characterization concluded that the Storm Drain Site meets that standard.

4. Waste Management (310 CMR 40.0427(4)(e))

4.1 Disposal Characterization

Previous testing of water in the storm drain catch basins, conducted in March and April 2008 (Table 2), indicated the presence of chlorinated VOCs, in particular PCE, related to the 50 Tufts Street Site. Solids from each of the four storm drain catch basins were tested in April 2009 and PCE was detected in three of the four storm drain catch basins (Appendix C). Because the PCE in the solids and water from the storm drain catch basins is believed to be from a known source (known release of a listed hazardous material), the water and solids containing the PCE were classified as hazardous for disposal purposes.

4.2 Water Waste

TMC generated twelve 55-gallon drums of liquid while removing the solids from the storm drain catch basins. The liquid was disposed of off-site at General Chemical. The hazardous waste manifest tracking the off-site disposal of this waste is included in Appendix D.

4.3 Solids Management

A total of 11.19 tons of catch basin solids were removed from the four MBTA storm drain catch basins on Washington Street. TMC transported the solids off-site to General Chemical. A copy of the hazardous waste manifest tracking the off-site recycling of the solids is included in Appendix D.

5. Method 3 Risk Characterization (310 CMR 40.0990)

5.1 Introduction

AMEC performed a Method 3 Risk Characterization in accordance with the MCP (310 CMR 40.0900) to evaluate the potential harm posed by the Storm Drain Site to human health, safety, public welfare, and the environment. The Method 3 Risk Characterization was prepared based on the characterization of potential receptors, foreseeable Storm Drain Site uses, contaminants of potential concern (COPCs) and exposure point concentrations (EPCs). A Method 3 Risk Characterization is site-specific and is appropriate for use at any disposal site. The complete AMEC Method 3 Risk Characterization Report, including the risk characterization methodologies and parameters, is presented in Appendix E. The Method 3 includes a Human Health Risk Characterization and a Stage I Environmental Risk Characterization.

The Storm Drain Site is limited to the storm drain collection system and the outfall to Millers River. Water samples collected from storm drain manholes that are not part of the Storm Drain Site (locations U1, U9, U11, U13, U14, and U15, Fig. 5) were not included as part of the data set used for the Risk Characterization. In addition, PCE in location U2 (Fig. 5) is attributable to water flowing from upstream of the 50 Tufts Street Site, so this data also were excluded from the Risk Characterization. This Method 3 Risk Characterization relies solely on the data collected from within the Storm Drain Site, namely dry and wet weather storm drain water sampling data and sampling data from solids from the catch basins.

5.2 Current and Reasonably Foreseeable Site Activity and Use

Consistent with the requirements of the MCP (310 CMR 40.0923), the Risk Characterization considered both current and future uses of the Storm Drain Site. The current use of the Storm Drain Site is as a storm water conveyance system. Reasonably foreseeable uses of the Storm Drain Site are the same as the current use (storm water conveyance).

5.3 Identification of Soil Categories and Groundwater Categories (310 CMR 40.0932 and 40.0933)

This section identifies and documents the applicable soil and groundwater categories, as described in the MCP (310 CMR 40.0930). The soil and groundwater categories are

considered general indicators of the potential for exposure to oil or hazardous material (OHM).

The Storm Drain Site is the interior of a storm drain system and its outfall to the Millers River. It does not include soil or groundwater. Therefore, the soil and groundwater categories under the MCP do not apply to the Storm Drain Site.

5.4 Summary of Analytical Results

The Risk Characterization considered the storm drain water sampling data and sampling data from solids from the catch basins as part of the evaluation of the potential Condition of SRM and the IRA. The data set for these two media was evaluated to create a data set for the Risk Characterization that represents current conditions for the Storm Drain Site.

5.4.1 Water Sample Analytical Results

Water data included in the Method 3 Risk Characterization are presented in Table 1

Data generated from storm drain water samples collected from U6-CB19, U6-CB33, and U6-CB34 (U6) were used to calculate EPCs for this location. We were unable to collect data from the storm drain outfall into the Millers River (location U12). Therefore, the arithmetic mean of data generated at the outflow pipe of the OWS (U10) was used to generate an EPC at the outfall at the Millers River.

5.4.2 Solids Sample Analytical Results

Solids data included in the Method 3 Risk Characterization are presented in Table 2.

All chemical testing results associated with the solids samples collected from the MBTA storm drain catch basins on Washington Street (U6 on Fig. 5) were used to calculate an EPC.

5.5 Contaminants of Potential Concern

In accordance with the DEP's "Guidance for Disposal Site Risk Characterization," dated July 28, 1995, all chemicals detected at the Storm Drain Site should be considered COPCs and should be carried through the risk assessment process unless one of the following conditions is true:

- The chemicals are present at a low frequency of detection and in low concentrations.
- The chemicals are present at levels that are consistent with "background" concentrations for the area and there is no evidence that their presence is related to

activities at the Storm Drain Site.

- The chemicals are field or laboratory contaminants.

No compounds detected at the Storm Drain Site were excluded from the Method 3 Risk Characterization based on these conditions.

5.5.1.1 Water

The following contaminants were detected in at least water sample at the Storm Drain Site at sufficient concentrations to be considered COPCs.

VOC: 1,1-dichloroethane, 1,2-dichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, 1,1-dichloroethylene, PCE, TCA, TCE, and vinyl chloride.

5.5.1.2 Solids

The laboratory detected the following contaminants in at least one solids sample at the Storm Drain Site at sufficient concentrations to be considered COPCs.

VOC: cis-1,2-dichloroethylene, PCE, 1,1,1-trichloroethylene (TCA), and trichloroethylene (TCE).

5.6 Exposure Assessment

An exposure assessment under the MCP is the process of identifying the potential for on-site and surrounding area receptors, both human and environmental, to come into contact with chemicals in the solids and water.

5.6.1 Potential Human Receptors

Potential human receptors were identified based on current and foreseeable uses of the Storm Drain Site. It is assumed that future use activities are consistent with current use activities, and that a municipal worker/utility worker may access the storm drains/catch basins as part of routine cleaning or repair operations.

Despite access restrictions and the unlikely presence of human receptors near the outfall of the storm drain (U12), the Risk Characterization assumes that a child/teenage trespasser (age 8-19) may access the outfall of the storm drain and potentially come into contact with storm drain water as it is discharged into the Millers River.

5.6.2 Potential Environmental Receptors

Potential environmental receptors include both terrestrial and aquatic habitats.

The Storm Drain Site is in a fully developed urban area and would not likely represent a potentially significant terrestrial habitat. However, the Storm Drain Site includes the outfall to the Millers River. The Millers River is a tributary of the Charles River and mainly functions as a storm water detention basin for multiple water discharges. No ACECs or Habitats of Rare Wetlands Wildlife are located at the Storm Drain Site or within 500 feet of the Storm Drain Site. According to the “Charles River Watershed 1997/1998 Water Quality Assessment Report” (DEP, 2000), the Millers River is “akin to a drainage ditch.”

5.6.3 Exposure Areas and Exposure Points

Water and solids samples collected from storm drains and catch basins within the Storm Drain Site were considered in the Risk Characterization. Exposure points for a municipal/utility worker are any of the storm drains or catch basins that could be accessed for routine cleaning or repair, including: catch basins U6-CB19, U6-CB33, and U6-CB34 on Washington Street; U4, the MBTA pump station; U5, a storm drain manhole; and U10, the outfall of the OWS just upstream from the Millers River.

The outfall of the MBTA storm drain system into the Millers River (U12) is the exposure point for a child/teen trespasser. As stated above, we were unable to gain access to sample this location; therefore, the water samples collected from the OWS (U10) were assumed to be representative of the outfall into the Millers River.

5.6.4 Hot Spot Evaluation (310 CMR 40.0924)

Under the MCP, hot spots must be considered as distinct exposure points. A hot spot is defined as a discrete area where the concentrations of OHM are substantially higher than those concentrations in the surrounding area (100-fold higher than the surrounding areas).

At the Storm Drain Site, the concentrations of PCE detected in the storm drain water collected in catch basins U6-CB19, U6-CB33, and U6-CB34 (Figs. 5 and 6) are greater than concentrations detected in other storm drain locations downgradient of the U6 catch basins. The average concentrations of some COPCs within the U6 catch basins are greater than 10-fold, but less than 100-fold higher than downgradient catch basins. Regardless, exposure to storm drain water within the U6 catch basins was, in fact, separately evaluated, so it would make no difference in this evaluation whether or not any of these locations were in fact a hotspot.

5.7 Identification of EPCs

The MCP requires that the determination or estimation of EPCs be representative of actual and foreseeable exposures. The development of EPCs often involves statistical analysis of the data; for example, the DEP recommends the use of average concentrations.

The EPC is defined as the chemical concentration in a given medium which a potential receptor may encounter at an exposure point. Exposure points are defined as locations of potential contact between a receptor and a given medium on a portion of the Site. EPCs were developed for water, solids, and ambient air at the Storm Drain Site. The EPCs are included in AMEC's Risk Characterization in Appendix E.

5.7.1 *Water EPCs*

For the municipal worker/utility scenario, the EPC for water is the arithmetic mean of the measured concentrations of COPCs in the water samples collected from the MBTA storm drain catch basins on Washington Street (U6-CB19, U6-CB33, and U6-CB34). We were unable to gain access to U6-CB20 during the wet weather and dry weather sampling events. The arithmetic mean was calculated assuming COPCs not present in a given sample were present at one half the laboratory reporting limits.

For the child/teen trespasser, the EPC for water is the arithmetic mean of the measured concentrations of COPCs in the water samples at the OWS (U10). GEI was unable to gain access to the outfall of the MBTA storm drain system into the Millers River (U12).

5.7.2 *Solids EPCs*

For the municipal worker/utility scenario, the EPC for the solids is the arithmetic mean of the measured concentrations of COPCs in the solids samples collected from the MBTA storm drain catch basins on Washington Street (U6-CB19, U6-CB20, U6-CB33, and U6-CB34).

It has been assumed that a child/teen trespasser would not come into contact with solids at the Site. An EPC for solids for the child/teen trespasser therefore was not calculated.

5.7.3 *Ambient Air EPCs*

Ambient air EPCs were derived from water concentrations of COPCs from locations U6-CB19, U6-CB33, and U6-CB34 to evaluate potential exposure of a municipal/utility worker to volatilized COPCs during routine cleaning or repair operations for the storm drain.

5.8 Risk of Harm to Human Health

The risk of harm to human health is evaluated by combining the results of the exposure assessment and the toxicity assessment for each COPC to estimate the potential for noncarcinogenic and carcinogenic human health effects from exposure to that compound.

The total noncarcinogenic Hazard Indices (HIs) for all evaluated scenarios are at or below DEP's target HI of 1. These results indicate that a condition of "No Significant Risk" exists for non-cancer effects of current and future exposures at each Exposure Area within the Storm Drain Site. The total Excess Lifetime Cancer Risks (ELCRs) for all evaluated scenarios are at or below DEP's target risk level of 1×10^{-5} . The ELCR calculations are based on conservative exposure durations and exposure point concentration assumptions. These results indicate that a condition of "No Significant Risk" exists for carcinogenic effects of current and future exposures at each Exposure Area within the Storm Drain Site.

5.9 Risk of Harm to Public Safety and Welfare

The risk of harm to safety and public welfare was evaluated in accordance with 310 CMR 40.0994. No overt situations posing a threat of physical harm or bodily injury exist, nor have persistent odors associated with the release been reported. As such, conditions at the Storm Drain Site do not pose a threat of physical harm or bodily injury, and present no dangerous or nuisance conditions.

Based on the overall results, a condition of "No Significant Risk" can be demonstrated for the Storm Drain Site under the safety and public welfare criteria.

5.10 Risk of Harm to the Environment

Risk to the environment was evaluated in accordance with DEP guidance ("Method 3 Environmental Risk Characterization" (DEP, 1996)) and the MCP.

Surface water samples of the Millers River were not collected as part of this assessment. Concentrations present within the outfall of the OWS (location U10) are a conservative representation of potential Storm Drain Site contribution into the Millers River. The maximum concentrations detected at the OWS are below the applicable Massachusetts Surface Water Quality Standards. Since these concentrations of chlorinated VOCs are below the Massachusetts Lowest Ecologically Based Standard by multiple orders of magnitude, the potential exposures to the environment do not represent "readily apparent harm" as defined in 310 CMR 40.0995(3)(b). Likewise, concentrations of all COPCs in surface water can be

ruled out as a “potentially significant exposure” in the Stage I Environmental Risk Characterization.

In addition, the Storm Drain Site does not represent significant habitat or provide for exposures for potential terrestrial receptors. Therefore, a Stage II Environmental Risk Characterization is not required to determine whether a condition of “No Significant Risk of harm” exists and the Storm Drain Site poses “No Significant Risk” to the Environment.

5.11 Characterization of Risk to Safety (310 CMR 40.0960)

Conditions at the Storm Drain Site do not pose a risk to public safety, as defined by the MCP. There are no rusted or corroded drums or containers, open pits, lagoons, or other dangerous structures at the Storm Drain Site; there is no threat of fire or explosion at the Storm Drain Site; and there are no uncontained materials that exhibit the characteristics of corrosivity, reactivity, or flammability at the Storm Drain Site.

5.12 Uncertainty Analysis

Certain assumptions within the risk assessment process must be made due to a lack of absolute scientific knowledge. Some of the assumptions are supported by considerable scientific evidence, while others have less support. Every assumption introduces some degree of uncertainty into the risk assessment process. Conservative assumptions are made throughout the risk assessment to ensure that the health of local residents and the environment are protected. When all of the assumptions are combined, it is much more likely that the actual risks, if any, are over-estimated rather than under-estimated.

The uncertainties associated with each stage of AMEC’s Method 3 Risk Characterization are discussed in Section 6.0 of the risk characterization included in Appendix E. AMEC concluded that risk was conservatively estimated at each stage.

5.13 Method 3 Risk Characterization Conclusions (310 CMR 40.0993 (6)(7))

A Method 3 Risk Characterization of harm to human health, public welfare, safety, and the environment for the Storm Drain Site was completed in accordance with the requirements of 310 CMR 40.0000, Subpart I of the MCP.

The Human Health Risk Characterization evaluated potential risk to current and future receptors assumed to be exposed to Site-related constituents detected in storm drains. The

results of the Human Health Risk Characterization demonstrate that the cancer and non-cancer risks associated with the evaluated exposure scenarios are below the DEP acceptable limits. Therefore, a condition of “No Significant Risk” exists with respect to potential human health.

The results of the evaluation of risk of harm to safety and public welfare indicated that no unsafe or nuisance conditions exist at the Storm Drain Site. Separate phase material at a thickness greater than ½ inch has not been observed at the Storm Drain Site. Therefore, a condition of “No Significant Risk” of harm to safety and public welfare exists for the Storm Drain Site.

The Stage I Environmental Risk Characterization concluded that there is evidence of potential exposure to the Millers River as defined in 310 CMR 40.0995(3)(a)(1)(d). Since potential concentrations of chlorinated VOCs in storm drain water are multiple orders of magnitude below Massachusetts Surface Water Standards, the potential environmental exposure does not represent “readily apparent harm” and will not result in potentially significant exposure. Therefore, the Storm Drain Site poses “No Significant Risk” with respect to terrestrial and aquatic exposures.

Collectively, these results lead to the conclusion that the Storm Drain Site achieves a condition of “No Significant Risk” under the assumption of unrestricted Storm Drain Site use, and no Activity and Use Limitation (AUL) is required to maintain the condition of “No Significant Risk.”

6. Representativeness Evaluation and Data Usability Assessment (310 CMR 40.1056(2)(k))

6.1 Introduction

We prepared this Representativeness Evaluation and Data Usability Assessment (REDUA) in accordance with the MCP (310 CMR 40.1056(2)(k)). The information presented in the REDUA below documents that the data relied upon are adequate spatially and temporally, scientifically valid and defensible, and of a sufficient level of precision, accuracy, and completeness to support the RAO.

6.2 Representativeness Evaluation

The Representativeness Evaluation evaluates the spatial and temporal data sets. It addresses whether the information adequately characterizes the disposal site and supports the conceptual site model (CSM). The Representativeness Evaluation should address the:

- CSM
- Use of Field/Screening Data
- Sampling Rationale
- Number, Spatial Distribution and Handling of Samples
- Temporal Distribution of Samples
- Completeness
- Inconsistency and Uncertainty
- Information Considered Unrepresentative

6.2.1 *Conceptual Site Model*

A CSM for the Storm Drain Site is presented in Section 1.5.

6.2.2 *Field/Screening Data*

No field or screening data were used to directly support actions in this RAO.

6.2.3 Sampling Rationale

To characterize the Storm Drain Site and evaluate potential risk, GEI collected storm water and solids samples. The Storm Drain Site is limited to the piping system, catch basins and outfall. Soil, groundwater, and indoor air potentially affected by chlorinated VOCs associated with the 50 Tufts Street Site have been addressed as part of the 50 Tufts Street Site.

6.2.4 Sample Number, Spatial Distribution, and Sample Handling

Sampling locations and depths were dictated by the nature of the Storm Drain Site, and were therefore limited to manholes, catch basins, and storm drains that were accessible to GEI field personnel. Sampling locations are illustrated on Figs. 5 and 6.

6.2.4.1 Water Sampling

We collected water samples from the MBTA storm drain system at accessible locations (storm drains and catch basins) during both dry and wet weather conditions. The operator of the OWS (U10) informed GEI that the storm drain outfall to the Millers River (U12) is submerged. GEI was unable to gain access to the Millers River, determine the location of the outfall, or collect a sample from the outfall.

6.2.4.2 Solids Sampling

We collected samples of the solids in the MBTA storm drain catch basins.

6.2.5 Temporal Distribution of Samples

We conducted temporal sampling at the Storm Drain Site to capture changes in inputs of water from groundwater flow and storm water runoff. Wet and dry weather samples were collected from accessible storm drain and catch basins.

6.2.6 Field Completeness

A comprehensive analytical data set for the Storm Drain Site is available and consists of sampling data from solids and storm water, with no data gaps (Appendix C).

6.2.7 Data Inconsistencies

No inconsistencies were observed during the collection of field data for this project.

6.2.8 Unused Data

Chlorinated VOCs were detected at nearly identical concentrations at two locations (U1 and U2) within the storm drain located west of Tufts Street, upgradient of the release of chlorinated VOCs associated with the 50 Tufts Street Site. Based on these testing results, the chlorinated VOCs detected at U1 and U2 are not believed to be related to either the 50 Tufts Street Site or the Storm Drain Site and were not used in the Method 3 Risk Characterization or to support the RAO.

DEP provided UniFirst with storm drain water sampling and testing results conducted by the MBTA pursuant to its NPDES permit that detected PCE in the MBTA storm drains between the Washington Street catch basins and Millers River, and in the outfall to the Millers River. In addition, GEI obtained historical data collected by the EPA for several locations within the Storm Drain Site. PCE concentrations in these data were lower than in the data collected by GEI and were not used in the Method 3 Risk Characterization or to support the RAO since we did not have information on how the samples were collected or appropriate laboratory reports.

6.3 Data Usability

The MCP-related activities performed, media collected, and dates of sample collection are detailed in Sections 3 and 4 of this report, and in Tables 1 and 2.

6.3.1 Methods

Tables 1 and 2 list the analytical methods used at the Storm Drain Site. All methods used are appropriate for the contaminants of concern at the Storm Drain Site. We used the methods specified in the DEP Compendium of Analytical Methods (CAM) for all analyses.

6.3.2 Data Review and Validation

Based on the Representativeness Evaluation, we assessed the analytical data quality of the water and solids in the attached tables. We reviewed the data internally according to GEI SOP RE-08, using the DEP Bureau of Waste Site Cleanup document *WSC#02-320: Compendium of Quality Assurance and Quality Control Requirements and Performance Standards for Selected Analytical Methods and Region I, U.S. Environmental Protection Agency-Northeast (EPA-NE) Data Validation Functional Guidelines for Evaluating Environmental Analyses*, December, 1996, as guidance.

In addition, the data collected as part of this study were sent to an independent reviewer for an EPA Tier II-type Data Validation. This external validation was conducted in accordance

with *Quality Assurance and Quality Control Requirements for SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectroscopy (GC/MS), for the MCP, WSC-CAM IIA, Final, May 28, 2004; Quality Assurance and Quality Control Requirements for the Acquisition and Reporting of Analytical Data in Support of Response Actions Conducted under the MCP, WSC-CAM VIIA, Final, May 21, 2004; EPA Test Methods for Evaluating Solid Waste, Physical Chemical Methods, SW-846, Third Edition, Final Update, December 1996 Method 8260B; Region I, EPANE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996; and EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review; Publication EPA A540/R-99/008, October 1999.*

The internal and external data reviews assessed the data reported by the laboratory for extraction efficiency (surrogate recovery), analytical accuracy (laboratory control spikes, etc.), and analytical precision (laboratory duplicates, laboratory control spike duplicates, field duplicates, etc.). Based on the results of the data reviews, we applied qualifiers to the data tables as warranted.

6.3.3 Field Data Usability

No field or screening data were used to directly support actions in this RAO.

6.3.4 Rejected Data

No analytical data collected from the site were rejected.

6.3.5 Presumptive Certainty

All data used in this report meet the method performance standards and quality control requirements for “Presumptive Certainty” as specified in DEP CAM IV A, Section 2.0 (a), (b), (c), and (d), or in the case of non-CAM method data, have been evaluated as comparable to CAM requirements. The validity and defensibility of the analytical data included in this report with respect to accuracy, precision, and completeness pursuant to 310 CMR 40.1056(2)(k) have therefore been established.

7. RAO Findings and Conclusions (310 CMR 40.1056)

7.1 IRA Completion Statement

An IRA Completion Statement is appropriate for the Storm Drain Site because:

- Based on the Phase IV Remedy Implementation Plan (RIP) submitted to DEP for the 50 Tufts Street Site, dated August 10, 2009 (RTN 3-23246), it is not likely that increasing concentrations of chlorinated VOCs will be infiltrating the storm drain system.
- No known condition exists at the Storm Drain Site that could pose or does pose an Imminent Hazard (IH) as defined in the MCP (310 CMR 40.0950).
- No known Critical Exposure Pathways (CEPs) as defined in the MCP (310 CMR 40.0006) are present at the Storm Drain Site.

7.2 Class B-1 RAO Statement

Based on a Method 3 Risk Characterization, a condition of “No Significant Risk” of harm to human health, public welfare, safety and the environment exists at the Storm Drain Site. An AUL is not required to maintain a condition of “No Significant Risk” pursuant to the MCP. There are no contaminant levels that exceed the Method 3 Upper Control Limits (UCLs).

It is our opinion that a Class B-1 RAO is appropriate for the Storm Drain Site because:

- Remedial actions have not been conducted because a level of “No Significant Risk” exists.
- An AUL is not necessary to ensure the existence or maintenance of a level of “No Significant Risk.”
- A Permanent Solution has been achieved.

7.2.1 Feasibility of Achieving or Approaching Background (310 CMR 40.1056(2)(e))

Contamination at the Storm Drain Site has not been reduced to or is consistent with background. The MCP requires the results of a feasibility evaluation to be documented for a

Class B-1 RAO to demonstrate that achieving or approaching background is not feasible. The primary source of chlorinated VOCs at the Storm Drain Site is likely to be groundwater infiltration into the MBTA storm drain catch basins located on Washington Street.

We conducted a benefit-cost analysis to evaluate the practicality of achieving or approaching background conditions at the Storm Drain Site. Groundwater currently infiltrates the catch basins and is pumped, along with collected storm water, into the storm drain system along New Washington Street and ultimately discharged to the Millers River. Chlorinated VOCs theoretically could be reduced or eliminated by sealing the existing catch basins to prevent the infiltration of groundwater into the system. If the catch basins were sealed, however, it would be necessary to control groundwater elevations in order to prevent the flooding of Washington Street. This alternative pumping system would likely include the installation of pumping well(s) and a treatment system to treat the pumped groundwater prior to a surface water discharge (likely into the MBTA storm drain system).

We estimated that sealing the catch basins and installing and operating an alternative pumping system, including treatment, would cost in excess of \$5,817,000.

Currently a condition of “No Significant Risk” exists at the Storm Drain Site. Therefore, in accordance with the MCP (310 CMR 40.0860(7)(a)), further remediation to achieve or approach background is considered infeasible because the incremental cost to achieve or approach background is disproportionate to the incremental benefit of risk reduction.

8. Limitations

This report was prepared for UniFirst Corporation, exclusively. The conclusions provided by GEI in this report are based solely on the information reported in this document. Additional information regarding the Storm Drain Site, which was not available to GEI, may result in a modification of the conclusions stated above. This report has been prepared in accordance with generally accepted geohydrological practices. In the event that a DEP audit is conducted, it is the responsibility of UniFirst Corporation, and not GEI, to respond to the DEP Notice of Audit Findings. No warranty, expressed or implied, is made.

9. References

- AMEC 2009. “Method 3 Risk Characterization,” dated October 13, 2009, by AMEC Earth and Environmental, Westborough, Massachusetts.
- DEP 2000. “Charles River Watershed 1997/1998 Water Quality Assessment Report,” dated February, 2000, by J.F. Fiorentino, L.E. Kennedy, and W.J. Weinstein of the Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, Massachusetts.
- DEP 2008. “310 CMR 40.0000, The Massachusetts Contingency Plan,” effective February 14, 2008, by the Massachusetts Department of Environmental Protection.
- GEI 2009(a). “MBTA Storm Drain Water Evaluation Sampling Results,” dated January 9, 2009, by GEI Consultants, Inc., Woburn, Massachusetts.
- GEI 2009(b). “Release Notification Form and Immediate Response Action Plan,” dated February 13, 2009, by GEI Consultants, Inc., Woburn, Massachusetts.
- GEI 2009(c). “Immediate Response Action Status Report No. 1,” dated April 15, 2009, by GEI Consultants, Inc., Woburn, Massachusetts.
- GZA 1998. “Millers River Preliminary Assessment and Risk Characterization Somerville/Cambridge Massachusetts,” prepared for the Massachusetts Bay Transportation Authority by GZA GeoEnvironmental, Inc., Norwood, Massachusetts.



Geotechnical
Environmental
Water Resources
Ecological



Table 1
Chemical Testing Results - Water
Storm Drain Water Evaluation
Somerville, Massachusetts

Sample Location: Utility ID: Sample Name: Sample Date:			Catch Basins on City of Somerville Property									Storm Drain Manholes on MBTA property in Somerville					
			U6-CB19			U6-CB33			U6-CB34			U1		U2		U5	
			CB 19 3/18/08	U6-19-DRY 10/10/08	U619-WET 11/14/08	CB 33 3/18/08	U6-33-DRY 10/10/08	U633-WET 11/14/08	CB 34 4/3/08	U6-34-DRY 10/10/08	U634-WET 11/14/08	U1-DRY 10/10/08	U1-WET 11/14/08	U2-DRY 10/10/08	U2-WET 11/14/08	U5-DRY 10/10/08	U5-WET 11/14/08
			Analyte	Method	Units												
Volatile Organic Compounds (VOCs)			8260		µg/l	59.5	87.4	62.2	16.8	9.7	15.1	1.6	1.6	2.2	< 1.0	< 1.0	< 1.0
Dichloroethane, 1,1-						50.1	< 1.0	< 5.0	21.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethane, 1,2-						1030	874	713	182	117	176	10.8	13.7	17.7	< 1.0	< 1.0	2.1
Dichloroethylene, cis-1,2-						23.5	7.1	< 5.0	2.4	2.2	2.7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, trans-1,2-						100	17.0	5.4	40.3	7.7	7.7	< 1.0	2.5	1.3	< 1.0	< 1.0	6.7
Dichloroethylene, 1,1-						5170	3680	1430	2090	2170	1060	4.5	< 1.0	4.4	1.8	503	267
Tetrachloroethylene (PCE)						491	319	161	381	135	169	39.8	32.0	38.4	1.5	< 1.0	179
Trichloroethane, 1,1,1- (TCA)						254	303	234	252	138	187	25.3	25.3	23.2	1.1	< 1.0	104
Trichloroethylene (TCE)						40.1	260	153	13.7	13.7	17.3	< 1.0	0.98 J	1.1	< 1.0	< 1.0	< 1.0
Vinyl chloride																	

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
 2. µg/l = micrograms per liter.
 3. "<" = The analyte was not detected at a concentration above the specified reporting limit.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.

Table 1
Chemical Testing Results - Water
Storm Drain Water Evaluation
Somerville, Massachusetts

Sample Location: Utility ID: Sample Name: Sample Date:			Storm Drain Manholes on MBTA property in Somerville (Continued)						Storm Drain Manhole in Charlestown		Combined Sewer Manholes in Charlestown				Pump Station		OWS		
			U9				U11		U13		U14		U15		U4		U10		
			U9-F-DRY	U9-F-WET	U9-N-DRY	U9-N-WET	U11-R-DRY	U11-R-WET	U13-DRY	U13-WET	U14-DRY	U14-WET	U15-DRY	U15-WET	U4-DRY	U4-WET	U10-DRY	U10-WET	U20-WET (Dup.)
			10/10/08	11/14/08	10/10/08	11/14/08	10/10/08	11/14/08	10/10/08	11/14/08	10/10/08	11/14/08	10/10/08	11/14/08	10/10/08	11/14/08	10/10/08	11/14/08	11/14/08
Analyte	Method	Units																	
Volatile Organic Compounds (VOCs)			8260	µg/l															
Dichloroethane, 1, 1-			0.45 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	11.8	10.7	0.64 J	< 1.0	< 1.0
Dichloroethane, 1, 2-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, cis-1, 2-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.71 J	< 1.0	< 1.0	< 1.0	248	262	5.5	6.5	6.4
Dichloroethylene, trans-1, 2-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	3.3	< 5.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1, 1-			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	8.5	< 5.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene (PCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.5	3.4	< 1.0	< 1.0	1790	1170	27.4	25.2	24.6
Trichloroethane, 1, 1, 1- (TCA)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.52 J	< 1.0	< 1.0	< 1.0	121	103	5.4	6.3	6.2
Trichloroethylene (TCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.52 J	< 1.0	< 1.0	< 1.0	165	132	4.9	5.7	5.5
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	9.1	7.5	< 1.0	< 1.0	< 1.0

- General Notes:**
1. Analytes detected in at least one sample are reported here.
a complete list of analytes see the attached laboratory data s
 2. µg/l = micrograms per liter.
 3. "<" = The analyte was not detected at a concentration above
specified reporting limit.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and
is estimated.

Table 2
Chemical Testing Results - Solids
Storm Drain Water Evaluation
Somerville, Massachusetts

Analyte			Utility ID:		U6-CB19	U6-CB20	U6-CB33	U6-CB34
			Sample Name:		CB19SED	CB20SED	U633-WET	CB 34
			Sample Date:		4/22/09	4/22/09	4/22/09	4/22/09
			Method	Units				
Volatile Organic Compounds (VOCs)			8260	mg/kg				
Dichloroethylene, cis-1,2-					0.0863 J	< 0.1	0.256	< 0.12
Tetrachloroethylene (PCE)					27	< 0.1	2.79	0.20
Trichloroethane, 1,1,1- (TCA)					0.169	< 0.1	0.104 J	< 0.12
Trichloroethylene (TCE)					0.221	< 0.1	0.375	< 0.12

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. mg/kg = milligrams per kilogram.
3. "<" = The analyte was not detected at a concentration above the specified reporting limit.

Qualifying Notes:

- J The reported result is below the laboratory reporting limit and is estimated.



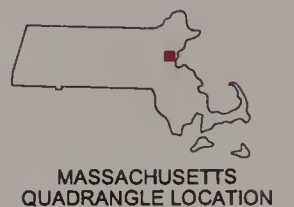
Geotechnical
Environmental
Water Resources
Ecological





0 1000 2000 4000 6000
SCALE, FEET

This Image provided by MassGIS is taken from
U.S.G.S. Topographic 7.5 X 15 Minute Series
Boston North, MA Quadrangle, 1985.
Datum is National Geodetic Vertical Datum (NGVD1929).
Contour Interval is 3 Meters.



IRA Completion Report and RAO (RTN 3-28231)
MBTA Storm Drain - Washington Street
Somerville, Massachusetts

UniFirst Corporation
Wilmington, Massachusetts



Project 04516-3

STORM DRAIN SITE
LOCATION MAP

October 2009

Fig. 1



NOTES:

1. BASE PLAN TITLED "COMMUTER RAIL MAINTENANCE FACILITY, SOMERVILLE AREA" PREPARED BY MALCOLM PIRNIE, DATED SEPTEMBER 2004.
2. BASE PLAN HAS BEEN MODIFIED BY GEI TO SHOW DISPOSAL SITE BOUNDARY.

100 0 200
SCALE: 1" = 200'

LEGEND:

- DISPOSAL SITE BOUNDARY
- MILLERS RIVER

LEGEND

- LIMITS OF STUDY AREA
- TRIBUTARY DRAINAGE AREA
- LIMITS OF SUBCATCHMENT AREA
- NEW DRAINAGE SYSTEMS
- EXISTING DRAINS
- PROPOSED DRAINAGE SYSTEM
- PROPERTY LINE
- Approximate Route of Original Millers River

REFERENCE: DRAWING BASED ON PB/SS NOVEMBER 1990
MASTER DRAINAGE PLAN, FIGURE C-1.

IRA Completion Report and RAO (RTN 3-28231)
MBTA Storm Drain - Washington Street
Somerville, Massachusetts

UniFirst Corporation
Wilmington, Massachusetts



Project 04516-3

DISPOSAL SITE BOUNDARY

October 2009

Fig. 2

N:\04516\Drafting\04516-3\Subsurface Investigation\Util Eval\045163-16 Disposal Site Boundary

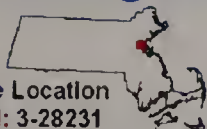
MA DEP - Bureau of Waste Site Cleanup

SITE NAME:

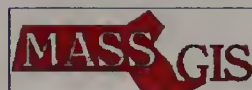
Site Scoring Map: 500 feet & 0.5 Mile Radii

MBTA Storm Drain
Washington Street
Somerville, MA 02145
NAD83 Coordinates 903448 233995

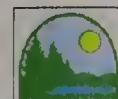
Site Location
RTN: 3-28231



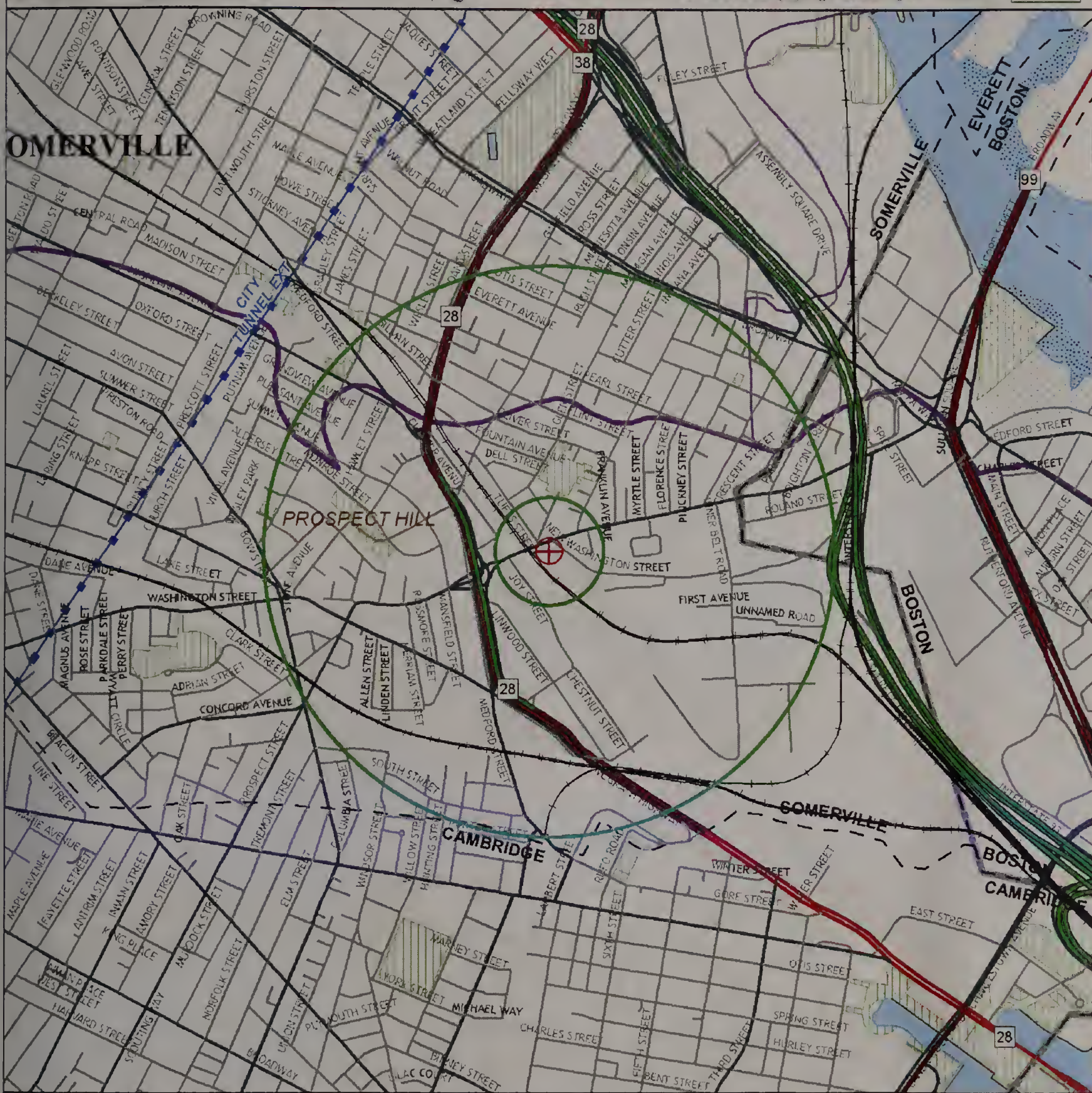
The information shown on this map is the best available at the date of printing. Please refer to the data source descriptions document.



Office of
Geographic and
Environmental
Information

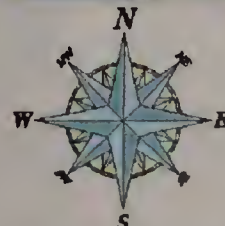


Massachusetts Executive Office of Energy & Environmental Affairs



Roads: Limited Access, Divided, Major Road, Connector, Street, Track, Trail
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
Basins: Major, Sub; Streams: Perennial, Intermittent, Man Made Shore, Dams
Potentially Productive Aquifers: Medium, High Yield
Non-Potential Drinking Water Source Area: Medium, High Yield

EPA Sole Source Aquifer; FEMA 100-year floodplain
Public Water Supplies: Ground, Surface, Non Community
Approved Zone 2; IWPA; Surface Water Supply Zone A
Hydrography: Open Water, Reservoir, Tidal Flat
Wetlands: Fresh, Salt, NHESP Wetlands Habitat
Cranberry Bog; Protected Open Space; ACEC
DEP Permitted Solid Waste Landfills; Certified Vernal Pools



SCALE 1:15,000

September 2, 2009

IRA Completion Report and RAO (RTN 3-28231)
MBTA Storm Drain - Washington Street
Somerville, Massachusetts
UniFirst Corporation
Wilmington, Massachusetts

GEI Consultants

MA DEP BWSC
SITE SCORING MAP
CATCH BASIN AREA

Project 04516-3

October 2009

Fig. 3

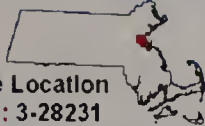
MA DEP - Bureau of Waste Site Cleanup

SITE NAME:

Site Scoring Map: 500 feet & 0.5 Mile Radii

MBTA Storm Drain
Washington Street
Somerville, MA 02145
NAD83 Coordinates 902350 235742

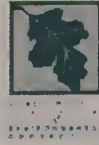
Site Location
RTN: 3-28231



The information shown on this map is the best available at the date of printing. Please refer to the data source descriptions document.



Office of Geographic and Environmental Information

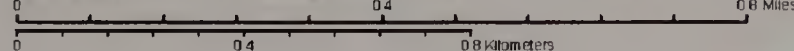


- Roads:** Limited Access, Divided, Major Road, Connector, Street, Track, Trail
- Boundaries:** Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
- Basins:** Major, Sub; Streams: Perennial, Intermittent, Man Made Shores, Dams
- Potentially Productive Aquifers:** Medium, High Yield
- Non-Potential Drinking Water Source Area:** Medium, High Yield

- EPA Sole Source Aquifer; FEMA 100-year floodplain**
- Public Water Supplies:** Ground, Surface, Non Community
- Approved Zone2; RWPA; Surface Water Supply Zone A**
- Hydrography:** Open Water, Reservoir, Tidal Flat
- Wetlands:** Fresh, Salt, NHEPS Wetlands Habitat
- Cranberry Bog; Protected Open Space; ACEC**
- DEP Permitted Solid Waste Landfills; Certified Vernal Pools**



SCALE 1:15,000



September 9, 2009

IRA Completion Report and RAO (RTN 3-28231)
MBTA Storm Drain - Washington Street
Somerville, Massachusetts

UniFirst Corporation
Wilmington, Massachusetts

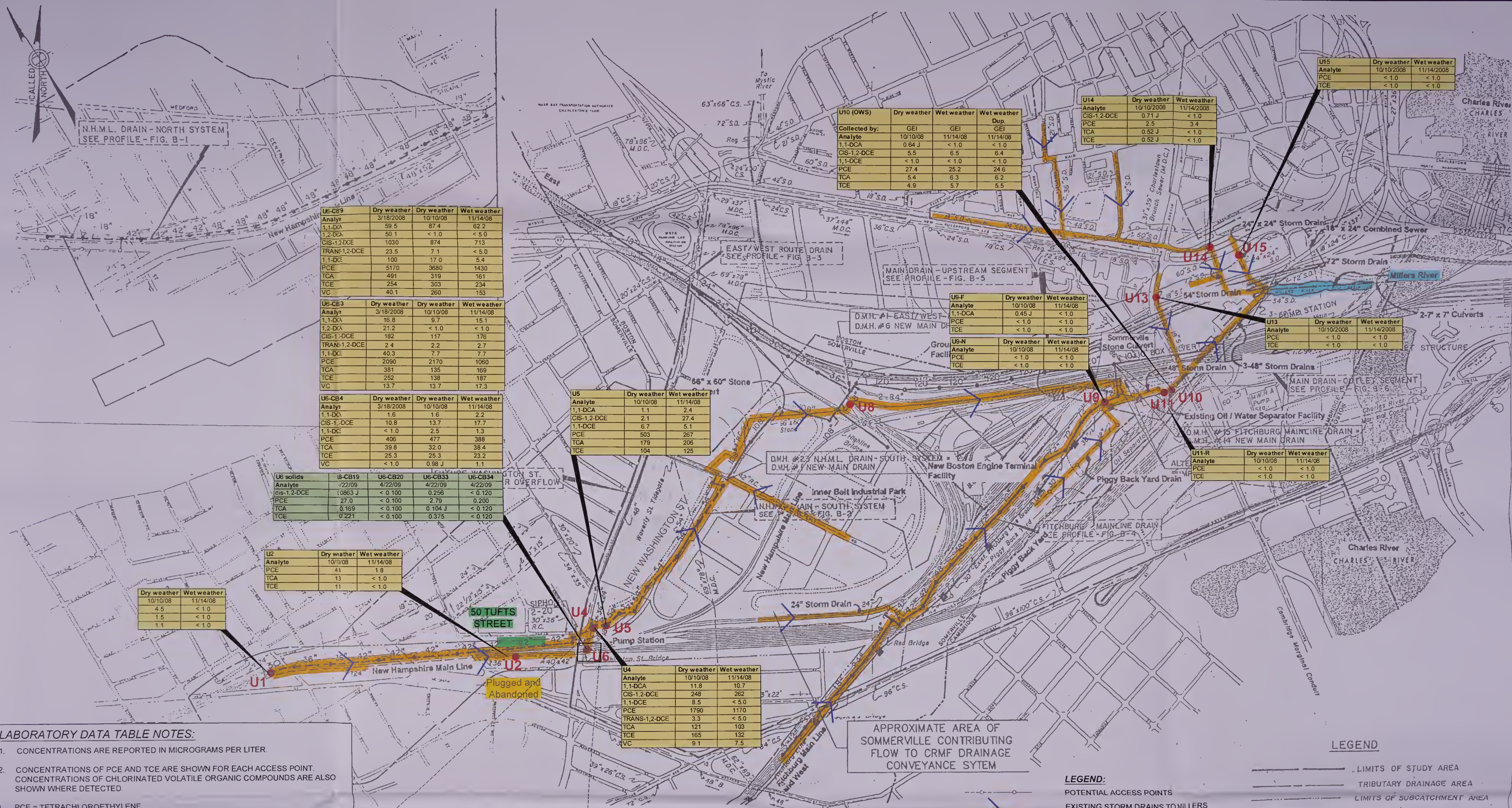


Project 04516-3

MA DEP BWSC
SITE SCORING MAP
MILLERS RIVER AREA

October 2009

Fig. 4



LABORATORY DATA TABLE NOTES:

- CONCENTRATIONS ARE REPORTED IN MICROGRAMS PER LITER.
- CONCENTRATIONS OF PCE AND TCE ARE SHOWN FOR EACH ACCESS POINT. CONCENTRATIONS OF CHLORINATED VOLATILE ORGANIC COMPOUNDS ARE ALSO SHOWN WHERE DETECTED.
- PCE = TETRACHLOROETHYLENE
- TCA = 1,1,1-TRICHLOROETHANE
- TCE = TRICHLOROETHYLENE
- 1,1-DCA = 1,1-DICHLOROETHANE
- 1,1-DCE = 1,1-DICHLOROETHYLENE
- CIS-1,2-DCE = CIS-1,2-DICHLOROETHYLENE
- TRANS-1,2-DCE = TRANS-1,2-DICHLOROETHYLENE
- VC = VINYL CHLORIDE
- J = THE RESULT IS BELOW LABORATORY DETECTION LIMITS AND IS ESTIMATED.
- ND = NOT DETECTED
- OWS = OIL WATER SEPARATOR
- OSC = OLD STONE CULVERT



INSET
CATCH BASIN LOCATIONS AT U6

NOTES:

- BASE PLAN TITLED "COMMUTER RAIL MAINTENANCE FACILITY, SOMERVILLE AREA" PREPARED BY MALCOLM PIRNIE, DATED SEPTEMBER 2004.
- BASE PLAN HAS BEEN MODIFIED BY GEI TO SHOW SELECTED STORM DRAIN FEATURES, AND STORM DRAIN SYSTEM WATER SAMPLING LOCATIONS AND CHEMICAL TESTING RESULTS.

DRAFT
Attorney-Client Work Product
Privileged and Confidential

IRA Completion Report and RAO (RTN 3-28231)
MBTA Storm Drain - Washington Street
Somerville, Massachusetts

UniFirst Corporation
Wilmington, Massachusetts



Project 04516-3

MBTA STORM DRAIN SYSTEM
WATER SAMPLING LOCATIONS
AND CHEMICAL TESTING
RESULTS

October 2009

Fig. 5

LEGEND

LEGEND:

- POTENTIAL ACCESS POINTS
- EXISTING STORM DRAINS TO MILLERS RIVER AND FLOW DIRECTION
- STORM DRAIN SYSTEM WATER SAMPLING LOCATIONS
- MILLERS RIVER
- WATER TESTING RESULTS
- CATCH BASIN SOLIDS LAB TESTING RESULTS

- LIMITS OF STUDY AREA
- TRIBUTARY DRAINAGE AREA
- LIMITS OF SUBCATCHMENT AREA
- NEW DRAINAGE SYSTEMS
- EXISTING DRAINS
- PROPOSED DRAINAGE SYSTEM
- PROPERTY LINE
- Approximate Route of Original Millers River



LEGEND

	CATCH BASIN
CONC.	CONCRETE
	DRAIN MANHOLE
	MONITORING WELL
	DRAIN LINE
DI	DUCTILE IRON
CB	CATCH BASIN
RCP	REINFORCED CONCRETE PIPE
R	ELEVATION OF RIM (FT, NGVD)
I(#)	ELEVATION OF INVERT (FT, NGVD)
(M)	ELEVATION OBTAINED FROM MBTA PLAN DATED 4/19/07
(#)XXX	INVERT NUMBER/SIZE/MATERIAL

GENERAL NOTES

- HORIZONTAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983.
- VERTICAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988.
- STREET LINES AND BASE MAPPING RECEIVED VIA DIGITAL FILE FROM GEI ON MAY 26, 2006 AND WERE "BEST FIT" TO THE FIELD LOCATION OF THE BUILDING LOCATED AT #50 TUFTS STREET.
- MONITORING WELL LOCATIONS AND ELEVATIONS WERE ESTABLISHED BY ON THE GROUND SURVEYS BY BSC GROUP, INC. ON MAY 31, 2006, MARCH 16-20, 2007, JULY 23, 2007, AUGUST 31, 2007, OCTOBER 31, 2007 AND FEBRUARY 4, 2008. PVC AND GROUND ELEVATIONS WERE ESTABLISHED BY TRIGONOMETRIC METHODS USING A TOTAL STATION.
- ELEVATIONS ARE IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (FT, NAVD).
- SURVEY LOCATIONS MARKED (M) ARE FROM MBTA MAP DATED 4/19/97.

UTILITY NOTE

EXISTING UTILITIES, WHERE SHOWN HEREON, ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY LOCATING AND COORDINATING ANY ON-SITE ACTIVITY WITH DIG-SAFE AND THE APPROPRIATE UTILITY COMPANY AND MAINTAINING EXISTING UTILITY SYSTEM SERVICE. DIG-SAFE SHALL BE NOTIFIED PER THE COMMONWEALTH OF MASSACHUSETTS STATUTE CHAPTER 82, SECTION 40, AT 1-888-344-7233. NO GUARANTEE IS IMPLIED OR INTENDED AS TO THE ACCURACY, LOCATION OR THAT ALL UTILITIES AND/OR SUBSURFACE STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL VERIFY SIZE, LOCATION AND INVERTS OR UTILITIES AND STRUCTURES AS REQUIRED PRIOR TO THE START OF CONSTRUCTION.

IRA Completion Report and RAO (RTN 3-28231)
MBTA Storm Drain - Washington Street
Somerville, Massachusetts
UniFirst Corporation
Wilmington, Massachusetts

GEI Consultants
Project 04516-3

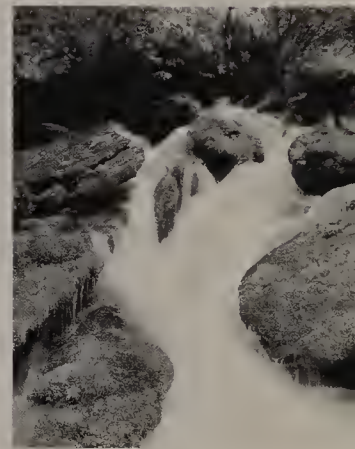
WASHINGTON STREET
DRAIN DETAIL

October 2009

Fig. 6



Geotechnical
Environmental
Water Resources
Ecological



RTN 3-28231
IRA Completion Report, Method 3 Risk Characterization,
and Class B-1 RAO Statement
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
UniFirst Corporation
October 15, 2009

Appendix A

DEP Transmittal Forms



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3 - 28231

A. RELEASE OR THREAT OF RELEASE LOCATION:

1. Release Name/Location Aid: **STORM DRAIN**
2. Street Address: **50 TUFTS ST**
3. City/Town: **SOMERVILLE** 4. ZIP Code: **021450000**
5. UTM Coordinates: a. UTM N: **4694169** b. UTM E: **328068**
- ☐ 6. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.
☐ a. Tier IA ☐ b. Tier IB ☐ c. Tier IC ☐ d. Tier II
- ☐ 7. Check here if this location is Adequately Regulated, pursuant to 310 CMR 40.0110-0114. Specify Program (check one):
☐ a. CERCLA ☐ b. HSWA Corrective Action ☐ c. Solid Waste Management
☐ d. RCRA State Program (21C Facilities)

B. THIS FORM IS BEING USED TO: (check all that apply)

1. List Submittal Date of Initial IRA Written Plan (if previously submitted): **2/16/2009**
(mm/dd/yyyy)
- ☐ 2. Submit an **Initial IRA Plan**.
- ☐ 3. Submit a **Modified IRA Plan** of a previously submitted written IRA Plan.
- ☐ 4. Submit an **Imminent Hazard Evaluation**. (check one)
☐ a. An Imminent Hazard exists in connection with this Release or Threat of Release.
☐ b. An Imminent Hazard does not exist in connection with this Release or Threat of Release.
☐ c. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release, and further assessment activities will be undertaken.
☐ d. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release. However, response actions will address those conditions that could pose an Imminent Hazard.
- ☐ 5. Submit a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard**.
- ☐ 6. Submit an **IRA Status Report**.
- ☐ 7. Submit a **Remedial Monitoring Report**. (This report can only be submitted through eDEP.)
a. Type of Report: (check one) ☐ i. Initial Report ☐ ii. Interim Report ☐ iii. Final Report
b. Frequency of Submittal: (check all that apply)
☐ i. A Remedial Monitoring Report(s) submitted monthly to address an Imminent Hazard.
☐ ii. A Remedial Monitoring Report(s) submitted monthly to address a Condition of Substantial Release Migration.
☐ iii. A Remedial Monitoring Report(s) submitted concurrent with a IRA Status Report.
c. Number of Remedial Systems and/or Monitoring Programs: _____

A separate BWSC105A, IRA Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3 - 28231

B. THIS FORM IS BEING USED TO (cont.): (check all that apply)

☒ 8. Submit an **IRA Completion Statement**.

☐ a. Check here if future response actions addressing this Release or Threat of Release notification condition will be conducted as part of the Response Actions planned or ongoing at a Site that has already been Tier Classified under a different Release Tracking Number (RTN) . When linking RTNs, rescoring via the NRS is required if there is a reasonable likelihood that the addition of the new RTN(s) would change the classification of the site.

b. Provide Release Tracking Number of Tier Classified Site (Primary RTN):

-

These additional response actions must occur according to the deadlines applicable to the Primary RTN. Use the Primary RTN when making all future submittals for the site unless specifically relating to this Immediate Response Action.

☐ 9. Submit a **Revised IRA Completion Statement**.

(All sections of this transmittal form must be filled out unless otherwise noted above)

C. RELEASE OR THREAT OF RELEASE CONDITIONS THAT WARRANT IRA:

1. Identify Media Impacted and Receptors Affected: (check all that apply)

- ☐ a. Air ☐ b. Basement ☐ c. Critical Exposure Pathway ☐ d. Groundwater ☐ e. Residence
☐ f. Paved Surface ☐ g. Private Well ☐ h. Public Water Supply ☐ i. School ☐ j. Sediments
☐ k. Soil ☒ l. Storm Drain ☐ m. Surface Water ☐ n. Unknown ☐ o. Wetland ☐ p. Zone 2
☐ q. Others Specify: _____

2. Identify Oils and Hazardous Materials Released: (check all that apply)

- ☐ a. Oils ☒ b. Chlorinated Solvents ☐ c. Heavy Metals
☐ d. Others Specify: _____

D. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply, for volumes list cumulative amounts)

- | | |
|--|---|
| <input checked="" type="checkbox"/> 1. Assessment and/or Monitoring Only | <input type="checkbox"/> 2. Temporary Covers or Caps |
| <input type="checkbox"/> 3. Deployment of Absorbent or Containment Materials | <input type="checkbox"/> 4. Temporary Water Supplies |
| <input type="checkbox"/> 5. Structure Venting System | <input type="checkbox"/> 6. Temporary Evacuation or Relocation of Residents |
| <input type="checkbox"/> 7. Product or NAPL Recovery | <input type="checkbox"/> 8. Fencing and Sign Posting |
| <input type="checkbox"/> 9. Groundwater Treatment Systems | <input type="checkbox"/> 10. Soil Vapor Extraction |
| <input type="checkbox"/> 11. Bioremediation | <input type="checkbox"/> 12. Air Sparging |



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3

-

28231

D. DESCRIPTION OF RESPONSE ACTIONS (cont.): (check all that apply, for volumes list cumulative amounts)

☐ 13. Excavation of Contaminated Soils

☐ a. Re-use, Recycling or Treatment

☐ i. On Site Estimated volume in cubic yards _____

☐ ii. Off Site Estimated volume in cubic yards _____

ii.a. Receiving Facility: _____ Town: _____ State: _____

ii.b. Receiving Facility: _____ Town: _____ State: _____

iii. Describe: _____

☐ b. Store

☐ i. On Site Estimated volume in cubic yards _____

☐ ii. Off Site Estimated volume in cubic yards _____

ii.a. Receiving Facility: _____ Town: _____ State: _____

ii.b. Receiving Facility: _____ Town: _____ State: _____

☐ c. Landfill

☐ i. Cover Estimated volume in cubic yards _____

Receiving Facility: _____ Town: _____ State: _____

☐ ii. Disposal Estimated volume in cubic yards _____

Receiving Facility: _____ Town: _____ State: _____

☒ 14. Removal of Drums, Tanks or Containers:

a. Describe Quantity and Amount: **FOUR 55 GALLON DRUMS OF CATCH BASIN WATER**

b. Receiving Facility: **GENERAL CHEMICAL CORP** Town: **FRAMINGHAM** State: **MA**

c. Receiving Facility: _____ Town: _____ State: _____

☒ 15. Removal of Other Contaminated Media:

a. Specify Type and Volume: **FOUR CUBIC YARDS OF CATCH BASIN CLEANINGS**

b. Receiving Facility: **GENERAL CHEMICAL CORP** Town: **FRAMINGHAM** State: **MA**

c. Receiving Facility: _____ Town: _____ State: _____

☐ 16. Other Response Actions:

Describe: _____

☐ 17. Use of Innovative Technologies:

Describe: _____



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3 - 28231

E. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B of this form indicates that an **Immediate Response Action Plan** is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Imminent Hazard Evaluation** is being submitted, this Imminent Hazard Evaluation was developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and the assessment activity(ies) undertaken to support this Imminent Hazard Evaluation comply(ies) with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000;

> if Section B of this form indicates that an **Immediate Response Action Status Report** and/or a **Remedial Monitoring Report** is(are) being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Immediate Response Action Completion Statement** or a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard** is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 9719

2. First Name: ILEEN S

3. Last Name: GLADSTONE

4. Telephone: 7817214012

5. Ext.:

6. FAX:

7. Signature: Ileen S Gladstone

8. Date: 10/19/2009

(mm/dd/yyyy)

9. LSP Stamp:





Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3

-

28231

F. PERSON UNDERTAKING IRA:

1. Check all that apply: ☐ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions
2. Name of Organization: **UNIFIRST CORPORATION**
3. Contact First Name: **JOHN R** 4. Last Name: **BADEY**
5. Street: **68 JONSPIN RD** 6. Title: **VICE PRESIDENT**
7. City/Town: **WILMINGTON** 8. State: **MA** 9. ZIP Code: **018871090**
10. Telephone: **8003477888** 11. Ext.: 12. FAX: **9789881305**

G. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON UNDERTAKING IRA:

- ☒ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter
- ☒ e. Other RP or PRP Specify: **OTHER PRPS**
- ☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)
- ☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))
- ☐ 4. Any Other Person Undertaking IRA Specify Relationship:

H. REQUIRED ATTACHMENT AND SUBMITTALS:

- ☐ 1. Check here if any Remediation Waste, generated as a result of this IRA, will be stored, treated, managed, recycled or reused at the site following submission of the IRA Completion Statement. If this box is checked, you must submit one of the following plans, along with the appropriate transmittal form.
- ☐ a. A Release Abatement Measure (RAM) Plan (BWSC106) ☐ b. Phase IV Remedy Implementation Plan (BWSC108)
- ☐ 2. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.
- ☐ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health were notified of the implementation of an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- ☒ 4. Check here to certify that the Chief Municipal Officer and the Local Board of Health were notified of the submittal of a Completion Statement for an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- ☐ 5. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to the DEP Regional Office.
- ☒ 6. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3 - 28231

I. CERTIFICATION OF PERSON UNDERTAKING IRA:

1. I, **John R Badey**, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: **John R Badey** Signature 3. Title: **VICE PRESIDENT**

4. For: **UNIFIRST CORPORATION** 5. Date: **10/19/2009**
(Name of person or entity recorded in Section F) (mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section F.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____

11. Telephone: _____ 12. Ext.: _____ 13. FAX: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)

**Received by DEP on
10/19/2009 4:32:41 PM**

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DEP Transaction ID: 231500

Date and Time Submitted: 10/19/2009 4:32:41 PM

Other Email :

Form Name: BWSC105 Immediate Response Action Transmittal Form

RTN: 3-28231

Location: STORM DRAIN

Address: 50 TUFTS ST, SOMERVILLE, 021450000

Person Making Submittal

UNIFIRST CORPORATION

JOHN R BADEY

68 JONSPIN RD

WILMINGTON, MA 018871090

LSP

LSP #: 9719

LSP Name: ILEEN S GLADSTONE

Person Making Certification

UNIFIRST CORPORATION

John R Badey

Ancillary Document Uploaded/Mailed

BWSC-105 Q.B08 - IRA Completion Report - Uploaded (Storm Drain IRA CR & RAO 101509.pdf)



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC104

RESPONSE ACTION OUTCOME (RAO) STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

Release Tracking Number

3

- 28231

For sites with multiple RTNs, enter the Primary RTN above.

A. SITE LOCATION:

1. Site Name/Location Aid: STORM DRAIN

2. Street Address: 50 TUFTS ST

3. City/Town: SOMERVILLE

4. ZIP Code: 021450000

☐ 5. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.

☐ a. Tier IA

☐ b. Tier IB

☐ c. Tier IC

☐ d. Tier II

6. If a Tier I Permit has been issued, provide Permit Number: _____

B. THIS FORM IS BEING USED TO: (check all that apply)

1. List Submittal Date of RAO Statement (if previously submitted): _____

mm/dd/yyyy

☒ 2. Submit a Response Action Outcome (RAO) Statement

☐ a. Check here if this RAO Statement covers additional Release Tracking Numbers (RTNs). RTNs that have been previously linked to a Tier Classified Primary RTN do not need to be listed here.

b. Provide additional Release Tracking Number(s) covered by this RAO Statement.

☐

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☐

☐

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☐ 3. Submit a Revised Response Action Outcome Statement

☐ a. Check here if this Revised RAO Statement covers additional Release Tracking Numbers (RTNs), not listed on the RAO Statement or previously submitted Revised RAO Statements. RTNs that have been previously linked to a Tier Classified Primary RTN do not need to be listed here.

b. Provide additional Release Tracking Number(s) covered by this RAO Statement.

☐

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☐

☐

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☐

☐ 4. Submit a Response Action Outcome Partial (RAO-P) Statement

Check above box, if any Response Actions remain to be taken to address conditions associated with this disposal site having the Primary RTN listed in the header section of this transmittal form. This RAO Statement will record only an RAO-Partial Statement for that RTN. A final RAO Statement will need to be submitted that references all RAO-Partial Statements and, if applicable, covers any remaining conditions not covered by the RAO-Partial Statements.

Also, specify if you are an Eligible Person or Tenant pursuant to M.G.L. c. 21E s.2, and have no further obligation to conduct response actions on the remaining portion(s) of the disposal site:

☐

a. Eligible Person

☐

b. Eligible Tenant

☐ 5. Submit an optional Phase I Completion Statement supporting an RAO Statement

☐ 6. Submit a Periodic Review Opinion evaluating the status of a Temporary Solution for a Class C-1 RAO Statement, as specified in 310 CMR 40.1051 (Section F is optional)

☐ 7. Submit a Retraction of a previously submitted Response Action Outcome Statement (Sections E & F are not required)

(All sections of this transmittal form must be filled out unless otherwise noted above)



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC104

RESPONSE ACTION OUTCOME (RAO) STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

Release Tracking Number

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C. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply; for volumes, list cumulative amounts)

- | | |
|--|---|
| <input checked="" type="checkbox"/> 1. Assessment and/or Monitoring Only | <input type="checkbox"/> 2. Temporary Covers or Caps |
| <input type="checkbox"/> 3. Deployment of Absorbent or Containment Materials | <input type="checkbox"/> 4. Treatment of Water Supplies |
| <input type="checkbox"/> 5. Structure Venting System | <input type="checkbox"/> 6. Engineered Barrier |
| <input type="checkbox"/> 7. Product or NAPL Recovery | <input type="checkbox"/> 8. Fencing and Sign Posting |
| <input type="checkbox"/> 9. Groundwater Treatment Systems | <input type="checkbox"/> 10. Soil Vapor Extraction |
| <input type="checkbox"/> 11. Bioremediation | <input type="checkbox"/> 12. Air Sparging |
| <input type="checkbox"/> 13. Monitored Natural Attenuation | <input type="checkbox"/> 14. In-situ Chemical Oxidation |

☐ 15. Removal of Contaminated Soils

- ☐ a. Re-use, Recycling or Treatment ☐ i. On Site Estimated volume in cubic yards _____
- ☐ ii. Off Site Estimated volume in cubic yards _____

ii.a. Facility Name: _____ Town: _____ State: _____

ii.b. Facility Name: _____ Town: _____ State: _____

iii. Describe: _____

☐ b. Landfill

☐ i. Cover Estimated volume in cubic yards _____

Facility Name: _____ Town: _____ State: _____

☐ ii. Disposal Estimated volume in cubic yards _____

Facility Name: _____ Town: _____ State: _____

☒ 16. Removal of Drums, Tanks or Containers:

a. Describe Quantity and Amount: FOUR 55 GALLON DRUMS OF CATCH BASIN WATER.

b. Facility Name: GENERAL CHEMICAL CORP Town: FRAMINGHAM State: MA

c. Facility Name: _____ Town: _____ State: _____

☒ 17. Removal of Other Contaminated Media:

a. Specify Type and Volume: FOUR CUBIC YARDS OF CATCH BASIN SOLIDS.

b. Facility Name: GENERAL CHEMICAL CORP Town: FRAMINGHAM State: MA

c. Facility Name: _____ Town: _____ State: _____



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC104

RESPONSE ACTION OUTCOME (RAO) STATEMENT

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C. DESCRIPTION OF RESPONSE ACTIONS (cont.): (check all that apply; for volumes, list cumulative amounts)

☐ 18. Other Response Actions:

Describe: _____

☐ 19. Use of Innovative Technologies:

Describe: _____

D. SITE USE:

1. Are the response actions that are the subject of this submittal associated with the *redevelopment, reuse* or the *major expansion of the current use* of property(ies) impacted by the presence of oil and/or hazardous materials?

☐ a. Yes ☐ b. No ☒ c. Don't know

2. Is the property a *vacant or under-utilized commercial or industrial property* ("a brownfield property")?

☐ a. Yes ☒ b. No ☐ c. Don't know

3. Will funds from a state or federal brownfield incentive program be used on one or more of the property(ies) within the disposal site?

☐ a. Yes ☒ b. No ☐ c. Don't know If Yes, identify program(s): _____

4. Has a Covenant Not to Sue been obtained or sought?

☐ a. Yes ☐ b. No ☒ c. Don't know

5. Check all applicable categories that apply to the person making this submittal: ☐ a. Redevelopment Agency or Authority

☐ b. Community Development Corporation ☐ c. Economic Development and Industrial Corporation

☐ d. Private Developer ☐ e. Fiduciary ☐ f. Secured Lender ☐ g. Municipality

☐ h. Potential Buyer (non-owner) ☒ i. Other, describe: PRP

This data will be used by MassDEP for information purposes only, and does not represent or create any legal commitment, obligation or liability on the part of the party or person providing this data to MassDEP.

E. RESPONSE ACTION OUTCOME CLASS:

Specify the Class of Response Action Outcome that applies to the disposal site, or site of the Threat of Release. Select **ONLY** one Class.

☐ 1. **Class A-1 RAO:** Specify one of the following:

☐ a. Contamination has been reduced to background levels. ☐ b. A Threat of Release has been eliminated.

☐ 2. **Class A-2 RAO:** You **MUST** provide justification that reducing contamination to or approaching background levels is infeasible.

☐ 3. **Class A-3 RAO:** You **MUST** provide an implemented Activity and Use Limitation (AUL) and justification that reducing contamination to or approaching background levels is infeasible.

☐ 4. **Class A-4 RAO:** You **MUST** provide an implemented AUL, justification that reducing contamination to or approaching background levels is infeasible, and justification that reducing contamination to less than Upper Concentration Limits (UCLs) 15 feet below ground surface or below an Engineered Barrier is infeasible. If the Permanent Solution relies upon an Engineered Barrier, you must provide or have previously provided a Phase III Remedial Action Plan that justifies the selection of the Engineered Barrier.



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RESPONSE ACTION OUTCOME (RAO) STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

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E. RESPONSE ACTION OUTCOME CLASS (cont.):

☒ 5. Class B-1 RAO: Specify one of the following:

- ☐ a. Contamination is consistent with background levels ☒ b. Contamination is **NOT** consistent with background levels.

☐ 6. Class B-2 RAO: You **MUST** provide an implemented AUL.

☐ 7. Class B-3 RAO: You **MUST** provide an implemented AUL and justification that reducing contamination to less than Upper Concentration Limits (UCLs) 15 feet below ground surface is infeasible.

☐ 8. Class C-1 RAO: You must submit a plan as specified at 310 CMR 40.0861(2)(h). Indicate type of ongoing response actions.

- ☐ a. Active Remedial System ☐ b. Active Remedial Monitoring Program ☐ c. None

- ☐ d. Other Specify: _____

☐ 9. Class C-2 RAO: You must hold a valid Tier I Permit or Tier II Classification to continue response actions toward a Permanent Solution.

F. RESPONSE ACTION OUTCOME INFORMATION:

1. Specify the Risk Characterization Method(s) used to achieve the RAO described above:

- ☐ a. Method 1 ☐ b. Method 2 ☒ c. Method 3
☐ d. Method Not Applicable-Contamination reduced to or consistent with background, or Threat of Release abated

2. Specify all Soil Category(ies) applicable. More than one Soil Category may apply at a Site. Be sure to check off all **APPLICABLE** categories:

- ☐ a. S-1/GW-1 ☐ d. S-2/GW-1 ☐ g. S-3/GW-1
☒ b. S-1/GW-2 ☐ e. S-2/GW-2 ☒ h. S-3/GW-2
☒ c. S-1/GW-3 ☐ f. S-2/GW-3 ☒ i. S-3/GW-3

3. Specify all Groundwater Category(ies) impacted. A site may impact more than one Groundwater Category. Be sure to check off all **IMPACTED** categories:

- ☐ a. GW-1 ☒ b. GW-2 ☒ c. GW-3 ☐ d. No Groundwater Impacted

4. Specify remediation conducted:

- ☐ a. Check here if soil remediation was conducted.
☐ b. Check here if groundwater remediation was conducted.

5. Specify whether the analytical data used to support the Response Action Outcome was generated pursuant to the Department's Compendium of Analytical Methods (CAM) and 310 CMR 40.1056:

- ☒ a. CAM used to support all analytical data. ☐ b. CAM used to support some of the analytical data.
☐ c. CAM not used.

☒ 6. Check here to certify that the Class A, B or C Response Action Outcome includes a Data Usability Assessment and Data Representativeness Evaluation pursuant to 310 CMR 40.1056.

7. Estimate the number of acres this RAO Statement applies to:

1



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC104

RESPONSE ACTION OUTCOME (RAO) STATEMENT

Release Tracking Number

3 - 28231

Pursuant to 310 CMR 40.1000 (Subpart J)

G. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B indicates that either an **RAO Statement, Phase I Completion Statement and/or Periodic Review Opinion** is being provided, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 9719

2. First Name: ILEEN S

3. Last Name: GLADSTONE

4. Telephone: 7817214012

5. Ext.:

6. FAX:

7. Signature: Ileen S Gladstone

8. Date: 10/19/2009

mm/dd/yyyy

9. LSP Stamp:



H. PERSON MAKING SUBMITTAL:

1. Check all that apply: ☐ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions

2. Name of Organization: UNIFIRST CORPORATION

3. Contact First Name: JOHN R

4. Last Name: BADEY

5. Street: 68 JONSPIN RD

6. Title: VICE PRESIDENT

7. City/Town: WILMINGTON

8. State: MA

9. ZIP Code: 018871090

10. Telephone: 8003477888

11. Ext.:

12. FAX: 9789881305



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC104

RESPONSE ACTION OUTCOME (RAO) STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

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I. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON MAKING SUBMITTAL:

☒ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter

☒ e. Other RP or PRP Specify: **OTHER PRPS**

☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

☐ 4. Any Other Person Making Submittal Specify Relationship: _____

J. REQUIRED ATTACHMENT AND SUBMITTALS:

☐ 1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

☐ 2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of an RAO Statement that relies on the public way/rail right-of-way exemption from the requirements of an AUL.

☒ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of a RAO Statement with instructions on how to obtain a full copy of the report.

☒ 4. Check here to certify that documentation is attached specifying the location of the Site, or the location and boundaries of the Disposal Site subject to this RAO Statement. If submitting an RAO Statement for a PORTION of a Disposal Site, you must document the location and boundaries for both the portion subject to this submittal and, to the extent defined, the entire Disposal Site.

☒ 5. Check here to certify that, pursuant to 310 CMR 40.1406, notice was provided to the owner(s) of each property within the disposal site boundaries, or notice was not required because the disposal site boundaries are limited to property owned by the party conducting response actions. (check all that apply)

☐ a. Notice was provided prior to, or concurrent with the submittal of a Phase II Completion Statement to the Department.

☒ b. Notice was provided prior to, or concurrent with the submittal of this RAO Statement to the Department.

☐ c. Notice not required. d. Total number of property owners notified, if applicable: **4**

☐ 6. Check here if required to submit one or more AULs. You must submit an AUL Transmittal Form (BWSC113) and a copy of each implemented AUL related to this RAO Statement. Specify the type of AUL(s) below: (required for Class A-3, A-4, B-2, B-3 RAO Statements)

☐ a. Notice of Activity and Use Limitation b. Number of Notices submitted: _____

☐ c. Grant of Environmental Restriction d. Number of Grants submitted: _____

☒ 7. If an RAO Compliance Fee is required for any of the RTNs listed on this transmittal form, check here to certify that an RAO Compliance Fee was submitted to DEP, P. O. Box 4062, Boston, MA 02211.

☐ 8. Check here if any non-updatable information provided on this form is incorrect, e.g. Site Address/Location Aid. Send corrections to the DEP Regional Office.

☒ 9. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC104

RESPONSE ACTION OUTCOME (RAO) STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

Release Tracking Number

3

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28231

K. CERTIFICATION OF PERSON MAKING SUBMITTAL:

1. I, **John R Badey**, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: **John R Badey**

Signature

3. Title: **VICE PRESIDENT**

4. For: **UNIFIRST CORPORATION**

(Name of person or entity recorded in Section H)

5. Date: **10/19/2009**

mm/dd/yyyy

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section H.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____

11. Telephone: _____ 12. Ext.: _____ 13. FAX: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)

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DEP Transaction ID: 261299

Date and Time Submitted: 10/19/2009 4:33:55 PM

Other Email :

Form Name: BWSC104 Response Action Outcome Transmittal Form

RTN: 3-28231

Location: STORM DRAIN

Address: 50 TUFTS ST, SOMERVILLE, 021450000

Person Making Submittal

UNIFIRST CORPORATION

JOHN R BADEY

68 JONSPIN RD

WILMINGTON, MA 018871090

LSP

LSP #: 9719

LSP Name: ILEEN S GLADSTONE

Person Making Certification

UNIFIRST CORPORATION

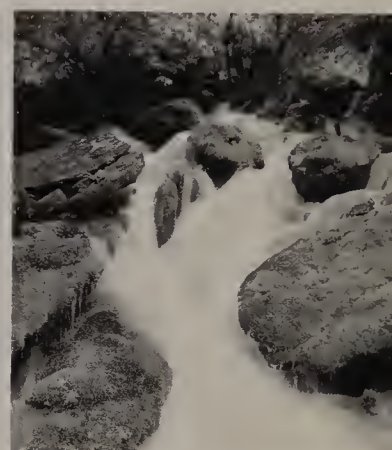
John R Badey

Ancillary Document Uploaded/Mailed

BWSC-104 Ques.B2 - RAO Report - Uploaded (Storm Drain IRA CR & RAO 101509.pdf)



Geotechnical
Environmental
Water Resources
Ecological



Appendix B

Public Notice Letters

Geotechnical
Environmental
Water Resources
Ecological

October 15, 2009
Project 04516-3

Mr. Vithal V. Deshpande
Environmental Coordinator
City Hall Annex
50 Evergreen Avenue
Somerville, MA 02145-2819

Dear Mr. Deshpande:

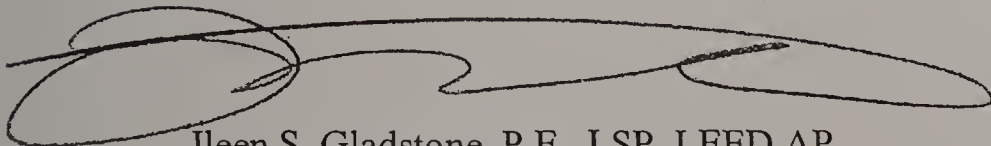
**Re: Immediate Response Action Completion Report and
Response Action Outcome Statement
MBTA Storm Drain - Washington Street
Somerville, Massachusetts
DEP RTN 3-28231**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, and in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.1403(3)), GEI Consultants, Inc. is notifying your office that an Immediate Response Action Completion Report and Response Action Outcome Statement (the Report), dated October 15, 2009, has been prepared for the MBTA Storm Drain in and near Washington Street in Somerville, Massachusetts. A copy of the complete Report on CD will be provided to you under separate cover. The Report is available at the Massachusetts Department of Environmental Protection (DEP) Northeast Regional Office in Wilmington, Massachusetts. In addition, copies have been provided to the Somerville Library and the City Clerk's office. A copy of the Report's Executive Summary is attached.

If you have any questions, please contact me at 781-721-4012 or igladstone@geiconsultants.com.

Sincerely,

GEI CONSULTANTS, INC.



Ileen S. Gladstone, P.E., LSP, LEED AP
Vice President

ISG:csh
Enclosures

c: John R. Badey, UniFirst Corporation
Irene M. Dale, Massachusetts Department of Environmental Protection



Geotechnical
Environmental
Water Resources
Ecological

October 15, 2009
Project 04516-3

Ms. E. Denise Simmons
Mayor of Cambridge
Cambridge City Hall
795 Massachusetts Avenue
Cambridge, MA 02139-3201

Dear Mayor Simmons:

**Re: Immediate Response Action Completion Report and
Response Action Outcome Statement
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
DEP RTN 3-28231**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, and in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.1403(3)), GEI Consultants, Inc. is notifying your office that an Immediate Response Action Completion Report and Response Action Outcome Statement (the Report), dated October 15, 2009, has been prepared for the MBTA Storm Drain in and near Washington Street in Somerville, Massachusetts. A copy of the complete Report on CD will be provided to you under separate cover. The Report is available at the Massachusetts Department of Environmental Protection (DEP) Northeast Regional Office in Wilmington, Massachusetts. In addition, copies have been provided to the Somerville Library and the Somerville City Clerk's office. A copy of the Report's Executive Summary is attached.

If you have any questions, please contact me at 781-721-4012 or igladstone@geiconsultants.com.

Sincerely,

GEI CONSULTANTS, INC.

A handwritten signature in black ink, appearing to read "Ileen S. Gladstone", written over a horizontal line.

Ileen S. Gladstone, P.E., LSP, LEED AP
Vice President

ISG:csh
Enclosures

c: John R. Badey, UniFirst Corporation
Vithal V. Deshpande, City of Somerville
Irene M. Dale, Massachusetts Department of Environmental Protection



Geotechnical
Environmental
Water Resources
Ecological

October 15, 2009
Project 04516-3

Mr. Michael Geinieres
Environmental Health Officer
Cambridge Public Health Department
119 Windsor Street, Ground Level
Cambridge, MA 02139-3647

Dear Mr. Geinieres:

**Re: Immediate Response Action Completion Report and
Response Action Outcome Statement
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
DEP RTN 3-28231**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, and in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.1403(3)), GEI Consultants, Inc. is notifying your office that an Immediate Response Action Completion Report and Response Action Outcome Statement (the Report), dated October 15, 2009, has been prepared for the MBTA Storm Drain in and near Washington Street in Somerville, Massachusetts. A copy of the complete Report on CD will be provided to you under separate cover. The Report is available at the Massachusetts Department of Environmental Protection (DEP) Northeast Regional Office in Wilmington, Massachusetts. In addition, copies have been provided to the Somerville Library and the Somerville City Clerk's office. A copy of the Report's Executive Summary is attached.

If you have any questions, please contact me at 781-721-4012 or igladstone@geiconsultants.com.

Sincerely,

GEI CONSULTANTS, INC.

A handwritten signature in dark ink, appearing to read "Ileen S. Gladstone", written over a horizontal line.

Ileen S. Gladstone, P.E., LSP, LEED AP
Vice President

ISG:csh
Enclosures

c: John R. Badey, UniFirst Corporation
Vithal V. Deshpande, City of Somerville
Irene M. Dale, Massachusetts Department of Environmental Protection



Geotechnical
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October 15, 2009
Project 04516-3

Dr. Paula A. Johnson, MD, MPH
Chairperson, Board of Health
Boston Public Health Commission
1010 Massachusetts Avenue, 2nd Floor
Boston, MA 02218-2600

Dear Dr. Johnson:


**Re: Immediate Response Action Completion Report and
Response Action Outcome Statement
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
DEP RTN 3-28231**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, and in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.1403(3)), GEI Consultants, Inc. is notifying your office that an Immediate Response Action Completion Report and Response Action Outcome Statement (the Report), dated October 15, 2009, has been prepared for the MBTA Storm Drain in and near Washington Street in Somerville, Massachusetts. A copy of the complete Report on CD will be provided to you under separate cover. The Report is available at the Massachusetts Department of Environmental Protection (DEP) Northeast Regional Office in Wilmington, Massachusetts. In addition, copies have been provided to the Somerville Library and the Somerville City Clerk's office. A copy of the Report's Executive Summary is attached.

If you have any questions, please contact me at 781-721-4012 or igladstone@geiconsultants.com.

Sincerely,

GEI CONSULTANTS, INC.



Ileen S. Gladstone, P.E., LSP, LEED AP
Vice President

ISG:csh
Enclosures

c: John R. Badey, UniFirst Corporation
Vithal V. Deshpande, City of Somerville
Irene M. Dale, Massachusetts Department of Environmental Protection

Geotechnical
Environmental
Water Resources
Ecological

October 15, 2009
Project 04516-3

Ms. Paulette Renault Caragianes
Director
Health Department
City Hall Annex
50 Evergreen Avenue
Somerville, MA 02145-2819

Dear Ms. Renault Caragianes:


**Re: Immediate Response Action Completion Report and
Response Action Outcome Statement
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
DEP RTN 3-28231**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, and in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.1403(3)), GEI Consultants, Inc. is notifying your office that an Immediate Response Action Completion Report and Response Action Outcome Statement (the Report), dated October 15, 2009, has been prepared for the MBTA Storm Drain in and near Washington Street in Somerville, Massachusetts. A copy of the complete Report on CD will be provided to you under separate cover. The Report is available at the Massachusetts Department of Environmental Protection (DEP) Northeast Regional Office in Wilmington, Massachusetts. In addition, copies have been provided to the Somerville Library and the City Clerk's office. A copy of the Report's Executive Summary is attached.

If you have any questions, please contact me at 781-721-4012 or igladstone@geiconsultants.com.

Sincerely,

GEI CONSULTANTS, INC.



Ileen S. Gladstone, P.E., LSP, LEED AP
Vice President

ISG:csH
Enclosures

c: John R. Badey, UniFirst Corporation
Vithal V. Deshpande, City of Somerville
Irene M. Dale, Massachusetts Department of Environmental Protection

Geotechnical
Environmental
Water Resources
Ecological

October 15, 2009
Project 04516-3

Mr. Bryan Glascock
Environment Department
Room 805
One City Hall Square
Boston, MA 02201-1020

Dear Mr. Glascock:

**Re: Immediate Response Action Completion Report and
Response Action Outcome Statement
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
DEP RTN 3-28231**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, and in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.1403(3)), GEI Consultants, Inc. is notifying your office that an Immediate Response Action Completion Report and Response Action Outcome Statement (the Report), dated October 15, 2009, has been prepared for the MBTA Storm Drain in and near Washington Street in Somerville, Massachusetts. A copy of the complete Report on CD will be provided to you under separate cover. The Report is available at the Massachusetts Department of Environmental Protection (DEP) Northeast Regional Office in Wilmington, Massachusetts. In addition, copies have been provided to the Somerville Library and the Somerville City Clerk's office. A copy of the Report's Executive Summary is attached.

If you have any questions, please contact me at 781-721-4012 or igladstone@geiconsultants.com.

Sincerely,

GEI CONSULTANTS, INC.



Illeen S. Gladstone, P.E., LSP, LEED AP
Vice President

ISG:csh
Enclosures

c: John R. Badey, UniFirst Corporation
Vithal V. Deshpande, City of Somerville
Irene M. Dale, Massachusetts Department of Environmental Protection



October 15, 2009
Project 04516-3

Geotechnical
Environmental
Water Resources
Ecological

Ms. E. Denise Simmons
Mayor of Cambridge
Cambridge City Hall
795 Massachusetts Avenue
Cambridge, MA 02116-3933

Dear Mayor Simmons:

**Re: Informational Notice to Property Owners
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
DEP RTN 3-28231**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, and in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.1406), GEI Consultants, Inc. is providing you with the attached "Informational Notice to Property Owners" (Form BWSC-122) for the MBTA Storm Drain Site in Somerville, Massachusetts (the Site).

GEI has completed the Immediate Response Action Completion Report, Method 3 Risk Characterization, and Class B-1 Response Action Outcome Statement (the Report), dated October 15, 2009 for the Site. A copy of the Report's Executive Summary and maps showing the location and boundary of the Site are also attached.

Individuals and public officials may request additional public involvement activities under 310 CMR 40.1400.

If you have any questions, please do not hesitate to contact me at 781.721.4012 or igladstone@geiconsultants.com.

Sincerely,

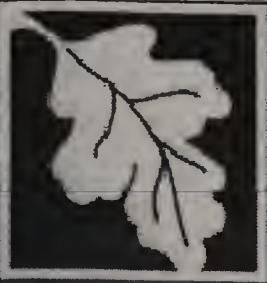
GEI CONSULTANTS, INC.

A handwritten signature in black ink, appearing to read "Ileen S. Gladstone", written over a horizontal line.

Ileen S. Gladstone, P.E., LSP, LEED AP
Vice President

ISG:csh
Enclosures

c: John R. Badey, UniFirst Corporation
Vithal V. Deshpande, City of Somerville
Irene M. Dale, Massachusetts Department of Environmental Protection



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC122

This notice is related to:
Release Tracking Number

INFORMATIONAL NOTICE TO PROPERTY OWNERS

3 - 28231

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

A. DISPOSAL SITE ADDRESS: (associated with Release Tracking Number provided above)

1. Street Address: Storm Drain Site

2. City/Town: Somerville, MA

3. ZIP Code: 02143

B. THIS NOTICE IS BEING PROVIDED TO THE FOLLOWING PROPERTY OWNER:

1. Name of Property Owner: City of Cambridge, c/o Mayor E. Denise Simmons

2. Address of Property For Which This Notice is Being Provided Owned by Property Owner named in B1:

a. Street Address: Discharge into the Millers River from the MBTA Storm Drain System

b. City/Town: Cambridge, MA

c. ZIP Code: 02116

C. THIS NOTICE IS BEING GIVEN : (check one)

- ☐ 1. Upon Completion of a Phase II Comprehensive Site Assessment.
- ☒ 2. Upon Submittal of a Response Action Outcome (i.e., Site Closure Report).
- ☐ 3. Upon Completion of Additional Investigation showing that Oil or Hazardous Material is not Present at the Property.

D. DESCRIPTION OF OIL AND/OR HAZARDOUS MATERIAL PRESENT OR LIKELY TO BE PRESENT AT THE PROPERTY :

(check all that apply)

AFFECTED ENVIRONMENTAL MEDIA

PRINCIPAL CHEMICAL(S) PRESENT

- ☐ 1. Soil
- ☐ 2. Groundwater
- ☐ 3. Surface Water
- ☐ 4. Sediment
- ☐ 5. Indoor Air
- ☒ 6. Other: water & solids in Storm Drains (See Attached)
(specify)

E. ATTACHMENTS PROVIDED WITH THIS NOTICE. AS REQUIRED BY 310 CMR 40.1406:

- ☒ 1. A Copy of the Map Showing or a Description Describing the Area where the Oil and/or Hazardous is or is likely to be Present.
- ☒ 2. A Copy of the Phase II Completion Site Assessment or Response Action Outcome Conclusions.

F. CONTACT INFORMATION RELATED TO THE PARTY PROVIDING THIS NOTICE:

1. Contact Name: Ileen S. Gladstone, GEI Consultants, Inc. 2. Street: 400 Unicorn Park Drive

3. City/Town: Woburn 4. State: MA 5. ZIP Code: 01801

6. Telephone: (781) 721-4012 7. Email: igladstone@geiconsultants.com



INFORMATIONAL NOTICE TO PROPERTY OWNERS

3 - 28231

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

MASSACHUSETTS REGULATIONS THAT REQUIRE THIS NOTICE

This notice is being provided pursuant to the Massachusetts Contingency Plan and the notification requirement at 310 CMR 40.1406. The Massachusetts Contingency Plan is a state regulation that specifies requirements for parties who are taking actions to address releases of chemicals (oil or hazardous material) to the environment.

THE PERSON(S) PROVIDING THIS NOTICE

This notice has been sent to you by the party(ies) who is/are addressing a release of oil or hazardous material to the environment at the location listed in **Section A** on the reverse side of this form.

PURPOSE OF THIS NOTICE

Parties who are taking actions to respond to releases of oil or hazardous material to the environment are required by state regulations (referred to above) to notify the owners of property where the oil or hazardous material is or is likely to be present. These same parties are also required to notify property owners upon completion of actions to address the oil or hazardous material, or if additional investigations show that the oil or hazardous material is not, as previously suspected, present at a property. **Section C** on the reverse side of this form indicates the circumstance under which you are receiving this notice at this time.

INFORMATION RELATED TO YOUR PROPERTY

Section D on the reverse side of this form indicates the type(s) of oil or hazardous material that is or is likely to be present at your property, and the environmental medium (e.g., soil or groundwater) where it is or is likely to be present. **Please note** when an investigation indicates that the oil or hazardous material is or is likely to be present at your property, this does not mean that the oil or hazardous material is posing a health risk to you. Parties who are taking actions to address oil and hazardous material releases are required by state regulations to adequately investigate these releases and take necessary actions to ensure that affected properties meet standards that are protective of human health and the environment.

ATTACHED MAP OR DESCRIPTION AND REPORT CONCLUSIONS

The party providing this notice to you is required to attach a map or description that indicates the boundaries of the area where the oil or hazardous material is or is likely to be present, and the conclusions of the site investigation or closure report (**Section E**). These attachments should give you additional information about the nature and location of the oil or hazardous material with respect to your property.

FOR MORE INFORMATION

Information about the general process for addressing releases of oil or hazardous material under the Massachusetts Contingency Plan and related public involvement opportunities may be found at <http://www.mass.gov/dep/cleanup/oview.htm>.

For more information regarding this notice, you may contact the party listed in **Section F** on the reverse side of this form. Information about the disposal site identified in **Section A** is also available in files at the Massachusetts Department of Environmental Protection.

See <http://mass.gov/dep/about/region/schedule.htm> if you would like to make an appointment to see these files. Please reference the **Release Tracking Number** listed in the upper right hand corner on the reverse side of this form when making file review appointments.

Table 1

Compounds of Potential Concern - Storm Drain Water

City of Cambridge Property

MBTA Storm Drain - Washington Street

Somerville, Massachusetts

Volatile Organic Compounds (VOCs)

Dichloroethane, 1,1-

Dichloroethane, 1,2-

Dichloroethylene, cis-1,2-

Dichloroethylene, trans-1,2-

Dichloroethylene, 1,1-

Tetrachloroethylene (PCE)

Trichloroethane, 1,1,1- (TCA)

Trichloroethylene (TCE)

Vinyl Chloride

General Note:

1. Only Compounds of Potential Concern (COPCs) detected are listed.



October 15, 2009
Project 04516-3

Geotechnical
Environmental
Water Resources
Ecological

Mr. Andrew D. Brennan
Director
MBTA Environmental Affairs Department
10 Park Plaza, Suite 6720
Boston, MA 02116-3933

Dear Mr. Brennan:

**Re: Informational Notice to Property Owners
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
DEP RTN 3-28231**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, and in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.1406), GEI Consultants, Inc. is providing you with the attached "Informational Notice to Property Owners" (Form BWSC-122) for the MBTA Storm Drain Site in Somerville, Massachusetts (the Site).

GEI has completed the Immediate Response Action Completion Report, Method 3 Risk Characterization, and Class B-1 Response Action Outcome Statement (the Report), dated October 15, 2009 for the Site. A copy of the Report's Executive Summary and maps showing the location and boundary of the Site are also attached.

Individuals and public officials may request additional public involvement activities under 310 CMR 40.1400.

If you have any questions, please do not hesitate to contact me at 781.721.4012 or igladstone@geiconsultants.com.

Sincerely,

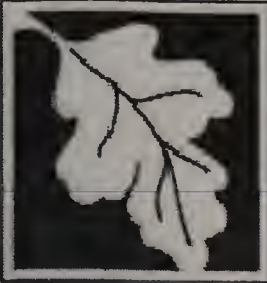
GEI CONSULTANTS, INC.

A handwritten signature in dark ink, appearing to read "Helen S. Gladstone", written over a horizontal line.

Helen S. Gladstone, P.E., LSP, LEED AP
Vice President

ISG:csh
Enclosures

c: John R. Badey, UniFirst Corporation
Vithal V. Deshpande, City of Somerville
Irene M. Dale, Massachusetts Department of Environmental Protection



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC122

This notice is related to:
Release Tracking Number

INFORMATIONAL NOTICE TO PROPERTY OWNERS

3 - 28231

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

A. DISPOSAL SITE ADDRESS: (associated with Release Tracking Number provided above)

1. Street Address: Storm Drain Site

2. City/Town: Somerville, MA

3. ZIP Code: 02143

B. THIS NOTICE IS BEING PROVIDED TO THE FOLLOWING PROPERTY OWNER:

1. Name of Property Owner: MBTA, c/o Andrew D. Brennan, Environmental Affairs Department

2. Address of Property For Which This Notice is Being Provided Owned by Property Owner named in B1:

a. Street Address: MBTA Storm Drain Catch Basins

b. City/Town: Somerville/Boston/Cambridge, MA

c. ZIP Code: _____

C. THIS NOTICE IS BEING GIVEN : (check one)

- ☐ 1. Upon Completion of a Phase II Comprehensive Site Assessment.
- ☒ 2. Upon Submittal of a Response Action Outcome (i.e., Site Closure Report).
- ☐ 3. Upon Completion of Additional Investigation showing that Oil or Hazardous Material is not Present at the Property.

D. DESCRIPTION OF OIL AND/OR HAZARDOUS MATERIAL PRESENT OR LIKELY TO BE PRESENT AT THE PROPERTY :

(check all that apply)

AFFECTED ENVIRONMENTAL MEDIA

PRINCIPAL CHEMICAL(S) PRESENT

- ☐ 1. Soil _____
- ☐ 2. Groundwater _____
- ☐ 3. Surface Water _____
- ☐ 4. Sediment _____
- ☐ 5. Indoor Air _____
- ☒ 6. Other: water & solids in Storm Drains (See Attached)
(specify)

E. ATTACHMENTS PROVIDED WITH THIS NOTICE. AS REQUIRED BY 310 CMR 40.1406:

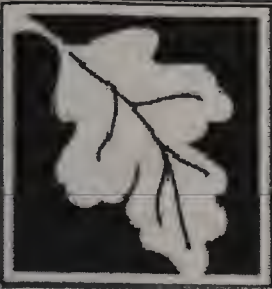
- ☒ 1. A Copy of the Map Showing or a Description Describing the Area where the Oil and/or Hazardous is or is likely to be Present.
- ☒ 2. A Copy of the Phase II Completion Site Assessment or Response Action Outcome Conclusions.

F. CONTACT INFORMATION RELATED TO THE PARTY PROVIDING THIS NOTICE:

1. Contact Name: Ileen S. Gladstone, GEI Consultants, Inc. 2. Street: 400 Unicorn Park Drive

3. City/Town: Woburn 4. State: MA 5. ZIP Code: 01801

6. Telephone: (781) 721-4012 7. Email: igladstone@geiconsultants.com



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC122

This notice is related to:
Release Tracking Number

INFORMATIONAL NOTICE TO PROPERTY OWNERS

3 - 28231

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

MASSACHUSETTS REGULATIONS THAT REQUIRE THIS NOTICE

This notice is being provided pursuant to the Massachusetts Contingency Plan and the notification requirement at 310 CMR 40.1406. The Massachusetts Contingency Plan is a state regulation that specifies requirements for parties who are taking actions to address releases of chemicals (oil or hazardous material) to the environment.

THE PERSON(S) PROVIDING THIS NOTICE

This notice has been sent to you by the party(ies) who is/are addressing a release of oil or hazardous material to the environment at the location listed in **Section A** on the reverse side of this form.

PURPOSE OF THIS NOTICE

Parties who are taking actions to respond to releases of oil or hazardous material to the environment are required by state regulations (referred to above) to notify the owners of property where the oil or hazardous material is or is likely to be present. These same parties are also required to notify property owners upon completion of actions to address the oil or hazardous material, or if additional investigations show that the oil or hazardous material is not, as previously suspected, present at a property. **Section C** on the reverse side of this form indicates the circumstance under which you are receiving this notice at this time.

INFORMATION RELATED TO YOUR PROPERTY

Section D on the reverse side of this form indicates the type(s) of oil or hazardous material that is or is likely to be present at your property, and the environmental medium (e.g., soil or groundwater) where it is or is likely to be present. **Please note** when an investigation indicates that the oil or hazardous material is or is likely to be present at your property, this does not mean that the oil or hazardous material is posing a health risk to you. Parties who are taking actions to address oil and hazardous material releases are required by state regulations to adequately investigate these releases and take necessary actions to ensure that affected properties meet standards that are protective of human health and the environment.

ATTACHED MAP OR DESCRIPTION AND REPORT CONCLUSIONS

The party providing this notice to you is required to attach a map or description that indicates the boundaries of the area where the oil or hazardous material is or is likely to be present, and the conclusions of the site investigation or closure report (**Section E**). These attachments should give you additional information about the nature and location of the oil or hazardous material with respect to your property.

FOR MORE INFORMATION

Information about the general process for addressing releases of oil or hazardous material under the Massachusetts Contingency Plan and related public involvement opportunities may be found at <http://www.mass.gov/dep/cleanup/oview.htm>.

For more information regarding this notice, you may contact the party listed in **Section F** on the reverse side of this form. Information about the disposal site identified in **Section A** is also available in files at the Massachusetts Department of Environmental Protection.

See <http://mass.gov/dep/about/region/schedule.htm> if you would like to make an appointment to see these files. Please reference the **Release Tracking Number** listed in the upper right hand corner on the reverse side of this form when making file review appointments.

Table 1

Compounds of Potential Concern - Storm Drain Water

MBTA Catch Basins and Oil/Water Separator

MBTA Storm Drain - Washington Street

Somerville, Massachusetts

Volatile Organic Compounds (VOCs)

Dichloroethane, 1,1-

Dichloroethane, 1,2-

Dichloroethylene, cis-1,2-

Dichloroethylene, trans-1,2-

Dichloroethylene, 1,1-

Tetrachloroethylene (PCE)

Trichloroethane, 1,1,1- (TCA)

Trichloroethylene (TCE)

Vinyl Chloride

General Note:

1. Only Compounds of Potential Concern (COPCs) detected are listed.

Table 1

Compounds of Potential Concern - Storm Drain Solids

MBTA Catch Basins and Oil/Water Separator

MBTA Storm Drain - Washington Street

Somerville, Massachusetts

Volatile Organic Compounds (VOCs)

Dichloroethylene, cis-1,2-

Tetrachloroethylene (PCE)

Trichloroethane, 1,1,1- (TCA)

Trichloroethylene (TCE)

General Note:

1. Only Compounds of Potential Concern (COPCs) detected are listed.

Geotechnical
Environmental
Water Resources
Ecological



October 15, 2009
Project 04516-3

Mr. Vithal V. Deshpande
Environmental Coordinator
City Hall Annex
50 Evergreen Avenue
Somerville, MA 02145-2819

Dear Mr. Deshpande:

**Re: Informational Notice to Property Owners
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
DEP RTN 3-28231**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, and in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.1406), GEI Consultants, Inc. is providing you with the attached "Informational Notice to Property Owners" (Form BWSC-122) for the MBTA Storm Drain Site in Somerville, Massachusetts (the Site).

GEI has completed the Immediate Response Action Completion Report, Method 3 Risk Characterization, and Class B-1 Response Action Outcome Statement (the Report), dated October 15, 2009 for the Site. A copy of the Report's Executive Summary and maps showing the location and boundary of the Site are also attached.

Individuals and public officials may request additional public involvement activities under 310 CMR 40.1400.

If you have any questions, please do not hesitate to contact me at 781.721.4012 or igladstone@geiconsultants.com.

Sincerely,

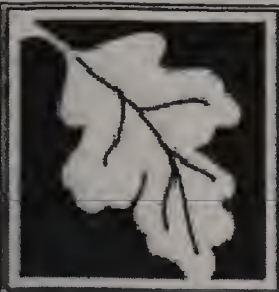
GEI CONSULTANTS, INC.

A handwritten signature in dark ink, appearing to read "Ileen S. Gladstone", written over a horizontal line.

Ileen S. Gladstone, P.E., LSP, LEED AP
Vice President

ISG:csH
Enclosures

c: John R. Badey, UniFirst Corporation
Irene M. Dale, Massachusetts Department of Environmental Protection



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC122

This notice is related to:
Release Tracking Number

INFORMATIONAL NOTICE TO PROPERTY OWNERS

3 - **28231**

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

A. DISPOSAL SITE ADDRESS: (associated with Release Tracking Number provided above)

1. Street Address: Storm Drain Site

2. City/Town: Somerville, MA

3. ZIP Code: 02143

B. THIS NOTICE IS BEING PROVIDED TO THE FOLLOWING PROPERTY OWNER:

1. Name of Property Owner: City of Somerville, c/o Vithal V. Deshpande, Environmental Coordinator

2. Address of Property For Which This Notice is Being Provided Owned by Property Owner named in B1:

a. Street Address: Catch Basins under B&M Railroad on Washington Street

b. City/Town: Somerville, MA

c. ZIP Code: 02143

C. THIS NOTICE IS BEING GIVEN : (check one)

- ☐ 1. Upon Completion of a Phase II Comprehensive Site Assessment.
- ☒ 2. Upon Submittal of a Response Action Outcome (i.e., Site Closure Report).
- ☐ 3. Upon Completion of Additional Investigation showing that Oil or Hazardous Material is not Present at the Property.

D. DESCRIPTION OF OIL AND/OR HAZARDOUS MATERIAL PRESENT OR LIKELY TO BE PRESENT AT THE PROPERTY :
(check all that apply)

AFFECTED ENVIRONMENTAL MEDIA

PRINCIPAL CHEMICAL(S) PRESENT

☐ 1. Soil

☐ 2. Groundwater

☐ 3. Surface Water

☐ 4. Sediment

☐ 5. Indoor Air

☒ 6. Other: water & solids in Storm Drains
(specify)

(See Attached)

E. ATTACHMENTS PROVIDED WITH THIS NOTICE. AS REQUIRED BY 310 CMR 40.1406:

- ☒ 1. A Copy of the Map Showing or a Description Describing the Area where the Oil and/or Hazardous is or is likely to be Present.
- ☒ 2. A Copy of the Phase II Completion Site Assessment or Response Action Outcome Conclusions.

F. CONTACT INFORMATION RELATED TO THE PARTY PROVIDING THIS NOTICE:

1. Contact Name: Ileen S. Gladstone, GEI Consultants, Inc. 2. Street: 400 Unicorn Park Drive

3. City/Town: Woburn

4. State: MA

5. ZIP Code: 01801

6. Telephone: (781) 721-4012

7. Email: igladstone@geiconsultants.com



INFORMATIONAL NOTICE TO PROPERTY OWNERS

3 - 28231

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

MASSACHUSETTS REGULATIONS THAT REQUIRE THIS NOTICE

This notice is being provided pursuant to the Massachusetts Contingency Plan and the notification requirement at 310 CMR 40.1406. The Massachusetts Contingency Plan is a state regulation that specifies requirements for parties who are taking actions to address releases of chemicals (oil or hazardous material) to the environment.

THE PERSON(S) PROVIDING THIS NOTICE

This notice has been sent to you by the party(ies) who is/are addressing a release of oil or hazardous material to the environment at the location listed in **Section A** on the reverse side of this form.

PURPOSE OF THIS NOTICE

Parties who are taking actions to respond to releases of oil or hazardous material to the environment are required by state regulations (referred to above) to notify the owners of property where the oil or hazardous material is or is likely to be present. These same parties are also required to notify property owners upon completion of actions to address the oil or hazardous material, or if additional investigations show that the oil or hazardous material is not, as previously suspected, present at a property. **Section C** on the reverse side of this form indicates the circumstance under which you are receiving this notice at this time.

INFORMATION RELATED TO YOUR PROPERTY

Section D on the reverse side of this form indicates the type(s) of oil or hazardous material that is or is likely to be present at your property, and the environmental medium (e.g., soil or groundwater) where it is or is likely to be present. **Please note** when an investigation indicates that the oil or hazardous material is or is likely to be present at your property, this does not mean that the oil or hazardous material is posing a health risk to you. Parties who are taking actions to address oil and hazardous material releases are required by state regulations to adequately investigate these releases and take necessary actions to ensure that affected properties meet standards that are protective of human health and the environment.

ATTACHED MAP OR DESCRIPTION AND REPORT CONCLUSIONS

The party providing this notice to you is required to attach a map or description that indicates the boundaries of the area where the oil or hazardous material is or is likely to be present, and the conclusions of the site investigation or closure report (**Section E**). These attachments should give you additional information about the nature and location of the oil or hazardous material with respect to your property.

FOR MORE INFORMATION

Information about the general process for addressing releases of oil or hazardous material under the Massachusetts Contingency Plan and related public involvement opportunities may be found at <http://www.mass.gov/dep/cleanup/oview.htm>.

For more information regarding this notice, you may contact the party listed in **Section F** on the reverse side of this form. Information about the disposal site identified in **Section A** is also available in files at the Massachusetts Department of Environmental Protection.

See <http://mass.gov/dep/about/region/schedule.htm> if you would like to make an appointment to see these files. Please reference the **Release Tracking Number** listed in the upper right hand corner on the reverse side of this form when making file review appointments.

Table 1

Compounds of Potential Concern - Storm Drain Water

City of Somerville Property

MBTA Storm Drain - Washington Street

Somerville, Massachusetts

Volatile Organic Compounds (VOCs)

Dichloroethane,1,1-

Dichloroethane,1,2-

Dichloroethylene, cis-1,2-

Dichloroethylene, trans-1,2-

Dichloroethylene,1,1-

Tetrachloroethylene (PCE)

Trichloroethane,1,1,1- (TCA)

Trichloroethylene (TCE)

Vinyl Chloride

General Note:

1. Only Compounds of Potential Concern (COPCs) detected are listed.

Table 1

Compounds of Potential Concern - Storm Drain Solids

City of Somerville Property

MBTA Storm Drain - Washington Street

Somerville, Massachusetts

Volatile Organic Compounds (VOCs)

Dichloroethylene, cis-1,2-

Tetrachloroethylene (PCE)

Trichloroethane, 1,1,1- (TCA)

Trichloroethylene (TCE)

General Note:

1. Only Compounds of Potential Concern (COPCs) detected are listed.

Geotechnical
Environmental
Water Resources
Ecological

October 15, 2009
Project 04516-3

Mr. Bryan Glascock
Environmental Department
Room 805
One City Hall Square
Boston, MA 02201-1020

Dear Mr. Glascock:

**Re: Informational Notice to Property Owners
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
DEP RTN 3-28231**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, and in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.1406), GEI Consultants, Inc. is providing you with the attached "Informational Notice to Property Owners" (Form BWSC-122) for the MBTA Storm Drain Site in Somerville, Massachusetts (the Site).

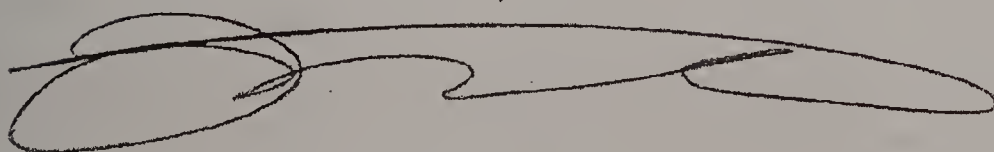
GEI has completed the Immediate Response Action Completion Report, Method 3 Risk Characterization, and Class B-1 Response Action Outcome Statement (the Report), dated October 15, 2009 for the Site. A copy of the Report's Executive Summary and maps showing the location and boundary of the Site are also attached.

Individuals and public officials may request additional public involvement activities under 310 CMR 40.1400.

If you have any questions, please do not hesitate to contact me at 781.721.4012 or igladstone@geiconsultants.com.

Sincerely,

GEI CONSULTANTS, INC.



Ileen S. Gladstone, P.E., LSP, LEED AP
Vice President

ISG:csH
Enclosures

c: John R. Badey, UniFirst Corporation
Vithal V. Deshpande, City of Somerville
Irene M. Dale, Massachusetts Department of Environmental Protection



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC122

This notice is related to:
Release Tracking Number

INFORMATIONAL NOTICE TO PROPERTY OWNERS

3 - 28231

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

A. DISPOSAL SITE ADDRESS: (associated with Release Tracking Number provided above)

1. Street Address: Storm Drain Site

2. City/Town: Somerville, MA

3. ZIP Code: 02143

B. THIS NOTICE IS BEING PROVIDED TO THE FOLLOWING PROPERTY OWNER:

1. Name of Property Owner: City of Boston, c/o Bryan Glascock, Environmental Department

2. Address of Property For Which This Notice is Being Provided Owned by Property Owner named in B1:

a. Street Address: Drainage Manhole (DMH; #20), intersection of New Rutherford Ave & Lynde Street

b. City/Town: Charlestown/Boston, MA

c. ZIP Code: 02129

C. THIS NOTICE IS BEING GIVEN : (check one)

- ☐ 1. Upon Completion of a Phase II Comprehensive Site Assessment.
- ☒ 2. Upon Submittal of a Response Action Outcome (i.e., Site Closure Report).
- ☐ 3. Upon Completion of Additional Investigation showing that Oil or Hazardous Material is not Present at the Property.

D. DESCRIPTION OF OIL AND/OR HAZARDOUS MATERIAL PRESENT OR LIKELY TO BE PRESENT AT THE PROPERTY :

(check all that apply)

AFFECTED ENVIRONMENTAL MEDIA

PRINCIPAL CHEMICAL(S) PRESENT

- ☐ 1. Soil _____
- ☐ 2. Groundwater _____
- ☐ 3. Surface Water _____
- ☐ 4. Sediment _____
- ☐ 5. Indoor Air _____
- ☒ 6. Other: water & solids in Storm Drains (See Attached)
(specify)

E. ATTACHMENTS PROVIDED WITH THIS NOTICE. AS REQUIRED BY 310 CMR 40.1406:

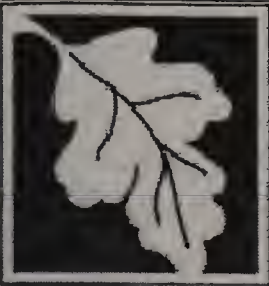
- ☒ 1. A Copy of the Map Showing or a Description Describing the Area where the Oil and/or Hazardous is or is likely to be Present.
- ☒ 2. A Copy of the Phase II Completion Site Assessment or Response Action Outcome Conclusions.

F. CONTACT INFORMATION RELATED TO THE PARTY PROVIDING THIS NOTICE:

1. Contact Name: Ileen S. Gladstone, GEI Consultants, Inc. 2. Street: 400 Unicorn Park Drive

3. City/Town: Woburn 4. State: MA 5. ZIP Code: 01801

6. Telephone: (781) 721-4012 7. Email: igladstone@geiconsultants.com



INFORMATIONAL NOTICE TO PROPERTY OWNERS

3 - 28231

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

MASSACHUSETTS REGULATIONS THAT REQUIRE THIS NOTICE

This notice is being provided pursuant to the Massachusetts Contingency Plan and the notification requirement at 310 CMR 40.1406. The Massachusetts Contingency Plan is a state regulation that specifies requirements for parties who are taking actions to address releases of chemicals (oil or hazardous material) to the environment.

THE PERSON(S) PROVIDING THIS NOTICE

This notice has been sent to you by the party(ies) who is/are addressing a release of oil or hazardous material to the environment at the location listed in **Section A** on the reverse side of this form.

PURPOSE OF THIS NOTICE

Parties who are taking actions to respond to releases of oil or hazardous material to the environment are required by state regulations (referred to above) to notify the owners of property where the oil or hazardous material is or is likely to be present. These same parties are also required to notify property owners upon completion of actions to address the oil or hazardous material, or if additional investigations show that the oil or hazardous material is not, as previously suspected, present at a property. **Section C** on the reverse side of this form indicates the circumstance under which you are receiving this notice at this time.

INFORMATION RELATED TO YOUR PROPERTY

Section D on the reverse side of this form indicates the type(s) of oil or hazardous material that is or is likely to be present at your property, and the environmental medium (e.g., soil or groundwater) where it is or is likely to be present. **Please note** when an investigation indicates that the oil or hazardous material is or is likely to be present at your property, this does not mean that the oil or hazardous material is posing a health risk to you. Parties who are taking actions to address oil and hazardous material releases are required by state regulations to adequately investigate these releases and take necessary actions to ensure that affected properties meet standards that are protective of human health and the environment.

ATTACHED MAP OR DESCRIPTION AND REPORT CONCLUSIONS

The party providing this notice to you is required to attach a map or description that indicates the boundaries of the area where the oil or hazardous material is or is likely to be present, and the conclusions of the site investigation or closure report (**Section E**). These attachments should give you additional information about the nature and location of the oil or hazardous material with respect to your property.

FOR MORE INFORMATION

Information about the general process for addressing releases of oil or hazardous material under the Massachusetts Contingency Plan and related public involvement opportunities may be found at <http://www.mass.gov/dep/cleanup/oview.htm>.

For more information regarding this notice, you may contact the party listed in **Section F** on the reverse side of this form. Information about the disposal site identified in **Section A** is also available in files at the Massachusetts Department of Environmental Protection.

See <http://mass.gov/dep/about/region/schedule.htm> if you would like to make an appointment to see these files. Please reference the **Release Tracking Number** listed in the upper right hand corner on the reverse side of this form when making file review appointments.

Table 1

Compounds of Potential Concern - Storm Drain Water

City of Boston (Charlestown) Property

MBTA Storm Drain - Washington Street

Somerville, Massachusetts

Volatile Organic Compounds (VOCs)

Dichloroethane, 1,1-

Dichloroethane, 1,2-

Dichloroethylene, cis-1,2-

Dichloroethylene, trans-1,2-

Dichloroethylene, 1,1-

Tetrachloroethylene (PCE)

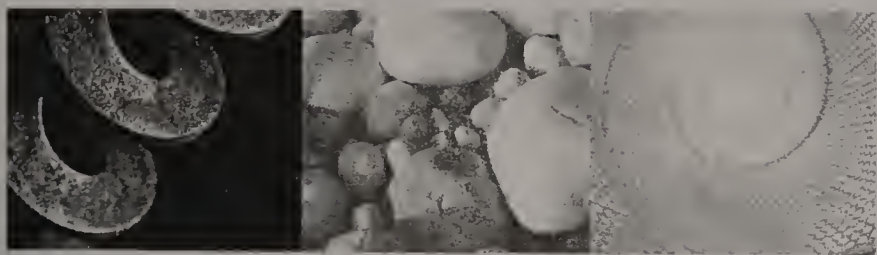
Trichloroethane, 1,1,1- (TCA)

Trichloroethylene (TCE)

Vinyl Chloride

General Note:

1. Only Compounds of Potential Concern (COPCs) detected are listed.



Geotechnical
Environmental
Water Resources
Ecological

RTN 3-28231

**Immediate Response Action
Completion Report, Method 3 Risk
Characterization, and Class B-1
Response Action Outcome Statement**

MBTA Storm Drain – Washington Street
Somerville, Massachusetts

Submitted to:

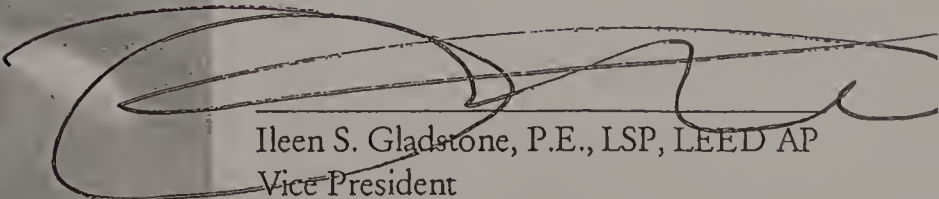
UniFirst Corporation
68 Jonspin Road
Wilmington, MA 01887

Submitted by:

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801
781-721-4000

October 15, 2009

Project 04516-3



Ileen S. Gladstone, P.E., LSP, LEED AP
Vice President

Executive Summary

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. (GEI) prepared this Immediate Response Action (IRA) Completion Report, Method 3 Risk Characterization, and Response Action Outcome (RAO) Statement for the release of chlorinated volatile organic compounds (VOCs) in groundwater into the Massachusetts Bay Transportation Authority (MBTA) storm drain catch basins on Washington Street in Somerville, Massachusetts (the Storm Drain Site, Fig. 1).

Background

Chlorinated VOCs were detected in MBTA storm drains during site investigations associated with the 50 Tufts Street Site (Release Tracking Number (RTN) 3-23246). In a letter dated June 25, 2008, the Massachusetts Department of Environmental Protection (DEP) requested that UniFirst investigate whether groundwater at the 50 Tufts Street Site containing VOCs may be infiltrating into the MBTA storm drain system and flowing to the Millers River. GEI conducted the requested investigation, and concluded that:

- VOCs may be entering the MBTA storm drain as a result of groundwater infiltration at the storm drain catch basins on Washington Street (Fig. 2); and
- There is a potential for concentrations of VOCs to be detected in the Millers River.

GEI conducted an evaluation of the storm drain system and on December 19, 2008, GEI reported to DEP a potential Condition of Substantial Release Migration (SRM) and UniFirst's intent to conduct an IRA. DEP assigned RTN 3-28231 to the reported release condition.

IRA Activities and Completion Statement

GEI conducted an IRA: (1) to evaluate the potential for groundwater contaminated with chlorinated VOCs to infiltrate the storm drain system; (2) to assess the magnitude and extent of any VOCs infiltrating the storm drain system; and (3) to determine what, if any, measures are to be undertaken to mitigate infiltration. We prepared this IRA Completion Report because the IRA activities have been completed.

Method 3 Risk Characterization

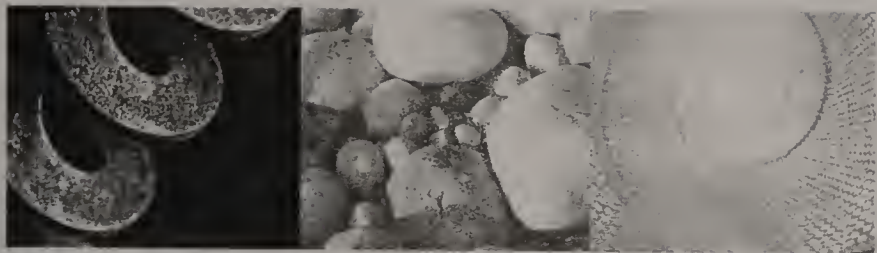
A Method 3 Risk Characterization was conducted by AMEC Earth and Environmental (AMEC) of Westford, Massachusetts, to evaluate risks associated with the chlorinated VOCs

detected in water and solids within the storm drain system at the Storm Drain Site, and the potential discharge of water containing chlorinated VOCs to the Millers River. Based on the Method 3 Risk Characterization, a condition of “No Significant Risk” of harm to human health, safety, public welfare, and the environment exists at the Storm Drain Site, and an Activity and Use Limitation (AUL) is not required to maintain a condition of “No Significant Risk” pursuant to the Massachusetts Contingency Plan (MCP).

RAO Statement

It is our opinion that a Class B-1 RAO is appropriate for the Site because:

- The IRA is complete.
- A Permanent Solution has been achieved.
- A level of “No Significant Risk” exists.
- Remedial actions have not been conducted because a level of “No Significant Risk” exists.
- An AUL is not required to maintain the level of “No Significant Risk.”



Geotechnical
Environmental
Water Resources
Ecological

RTN 3-28231

**Immediate Response Action
Completion Report, Method 3 Risk
Characterization, and Class B-1
Response Action Outcome Statement**

MBTA Storm Drain – Washington Street
Somerville, Massachusetts

Submitted to:

UniFirst Corporation
68 Jonspin Road
Wilmington, MA 01887

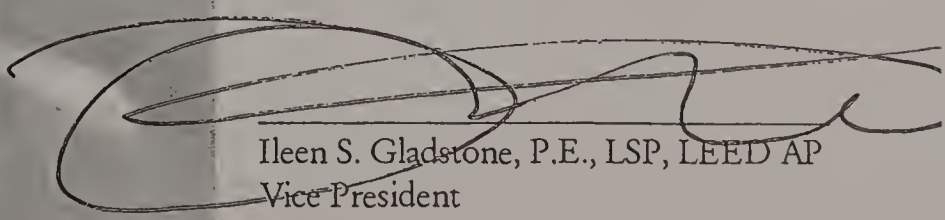
Submitted by:

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801
781-721-4000

October 15, 2009

Project 04516-3




Ileen S. Gladstone, P.E., LSP, LEED AP
Vice President

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- Remedial actions have not been conducted because a level of “No Significant Risk” exists.
- An AUL is not required to maintain the level of “No Significant Risk.”



0 1000 2000 4000 6000
SCALE, FEET

This Image provided by MassGIS is taken from
U.S.G.S. Topographic 7.5 X 15 Minute Series
Boston North, MA Quadrangle, 1985.
Datum is National Geodetic Vertical Datum (NGVD1929).
Contour Interval is 3 Meters.



IRA Completion Report and RAO (RTN 3-28231)
MBTA Storm Drain - Washington Street
Somerville, Massachusetts

UniFirst Corporation
Wilmington, Massachusetts



Project 04516-3

STORM DRAIN SITE
LOCATION MAP

October 2009

Fig. 1



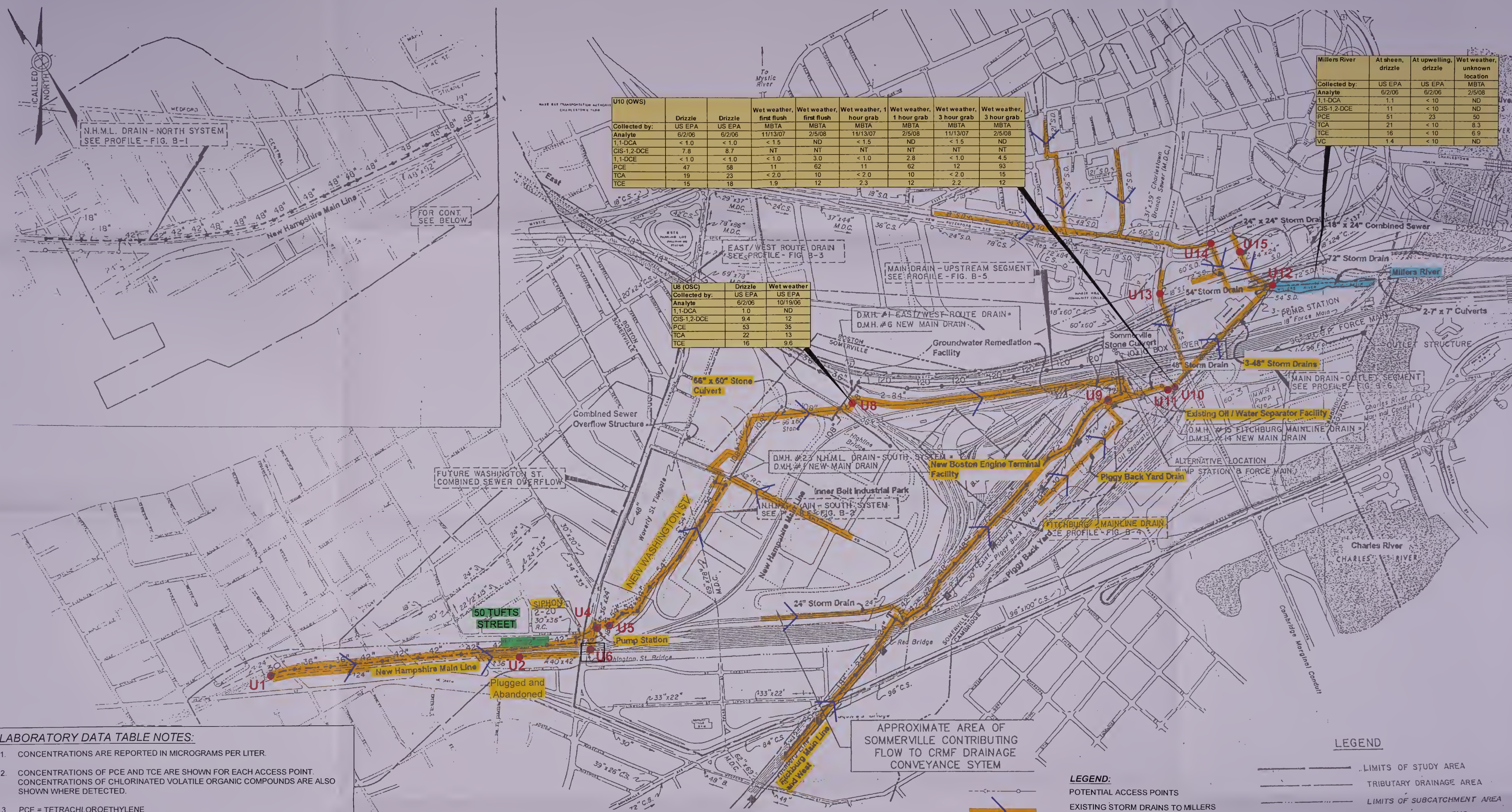
- NOTES:
1. BASE PLAN TITLED "COMMUTER RAIL MAINTENANCE FACILITY, SOMERVILLE AREA" PREPARED BY MALCOLM PIRNIE, DATED SEPTEMBER 2004.
 2. BASE PLAN HAS BEEN MODIFIED BY GEL TO SHOW DISPOSAL SITE BOUNDARY

100' 0' 200'
SCALE: 1" = 200'

- LEGEND:
- DISPOSAL SITE BOUNDARY
 - MILLERS RIVER

- LEGEND
- LIMITS OF STUDY AREA
 - TRIBUTARY DRAINAGE AREA
 - LIMITS OF SUBCATCHMENT AREA
 - NEW DRAINAGE SYSTEMS
 - EXISTING DRAINS
 - PROPOSED DRAINAGE SYSTEM
 - PROPERTY LINE
 - Approximate Route of Oldland Millers River

REPLACES: DRAWING DATED ON 10/3/95, NOVEMBER 1990
MASTER DRAINAGE PLAN, PROFILE C-1



LABORATORY DATA TABLE NOTES:

- CONCENTRATIONS ARE REPORTED IN MICROGRAMS PER LITER.
- CONCENTRATIONS OF PCE AND TCE ARE SHOWN FOR EACH ACCESS POINT. CONCENTRATIONS OF CHLORINATED VOLATILE ORGANIC COMPOUNDS ARE ALSO SHOWN WHERE DETECTED.
- PCE = TETRACHLOROETHYLENE
- TCA = 1,1,1-TRICHLOROETHANE
- TCE = TRICHLOROETHYLENE
- 1,1-DCA = 1,1-DICHLOROETHANE
- 1,1-DCE = 1,1-DICHLOROETHYLENE
- CIS-1,2-DCE = CIS-1,2-DICHLOROETHYLENE
- TRANS-1,2-DCE = TRANS-1,2-DICHLOROETHYLENE
- VC = VINYL CHLORIDE
- J = THE RESULT IS BELOW LABORATORY DETECTION LIMITS AND IS ESTIMATED.
- ND = NOT DETECTED
- OWS = OIL WATER SEPARATOR
- OSC = OLD STONE CULVERT

INSET
CATCH BASIN LOCATIONS AT U6

U10 (OWS)	Drizzle	Drizzle	Wet weather, first flush	Wet weather, first flush	Wet weather, 1 hour grab	Wet weather, 1 hour grab	Wet weather, 3 hour grab	Wet weather, 3 hour grab
Collected by:	US EPA	US EPA	MBTA	MBTA	MBTA	MBTA	MBTA	MBTA
Analyte	6/2/06	6/2/06	11/13/07	2/5/08	11/13/07	2/5/08	11/13/07	2/5/08
1,1-DCA	< 1.0	< 1.0	< 1.5	ND	< 1.5	ND	< 1.5	ND
CIS-1,2-DCE	7.8	8.7	NT	NT	NT	NT	NT	NT
1,1-DCE	< 1.0	< 1.0	< 1.0	3.0	< 1.0	2.8	< 1.0	4.5
PCE	47	58	11	62	11	62	12	93
TCA	19	23	< 2.0	10	< 2.0	10	< 2.0	15
TCE	15	18	1.9	12	2.3	12	2.2	12

U6 (OSC)	Drizzle	Wet weather
Collected by:	US EPA	US EPA
Analyte	6/2/06	10/19/06
1,1-DCA	1.0	ND
CIS-1,2-DCE	9.4	12
PCE	53	35
TCA	22	13
TCE	16	9.6

Millers River	At sheen, drizzle	At upwelling, drizzle	Wet weather, unknown location
Collected by:	US EPA	US EPA	MBTA
Analyte	6/2/06	6/2/06	2/5/08
1,1-DCA	1.1	< 10	ND
CIS-1,2-DCE	11	< 10	ND
PCE	51	23	50
TCA	21	< 10	8.3
TCE	16	< 10	6.9
VC	1.4	< 10	ND

NOTES:

- BASE PLAN TITLED "COMMUTER RAIL MAINTENANCE FACILITY, SOMERVILLE AREA" PREPARED BY MALCOLM PIRNIE, DATED SEPTEMBER 2004.
- BASE PLAN HAS BEEN MODIFIED BY GEI TO SHOW SELECTED STORM DRAIN FEATURES, AND STORM DRAIN SYSTEM WATER SAMPLING LOCATIONS AND CHEMICAL TESTING RESULTS.

LEGEND:

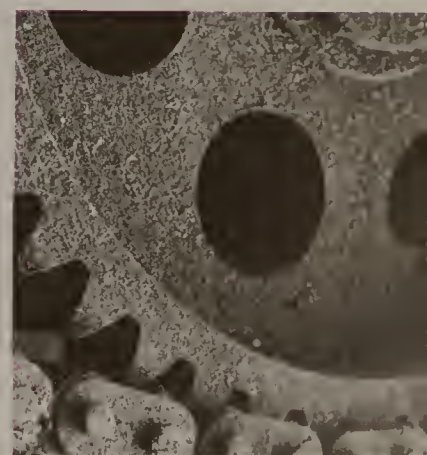
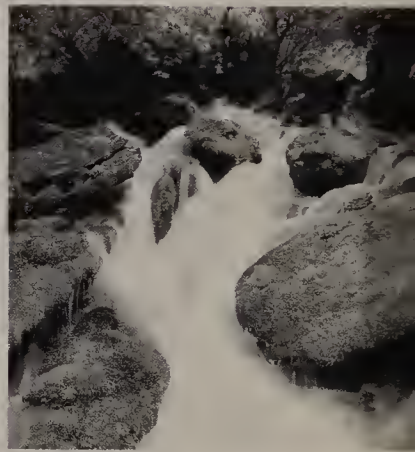
- POTENTIAL ACCESS POINTS
- EXISTING STORM DRAINS TO MILLERS RIVER AND FLOW DIRECTION
- STORM DRAIN SYSTEM WATER SAMPLING LOCATIONS
- MILLERS RIVER
- WATER TESTING RESULTS

LEGEND:

- LIMITS OF STUDY AREA
- TRIBUTARY DRAINAGE AREA
- LIMITS OF SUBCATCHMENT AREA
- NEW DRAINAGE SYSTEMS
- EXISTING DRAINS
- PROPOSED DRAINAGE SYSTEM
- PROPERTY LINE
- Approximate Route of Original Millers River

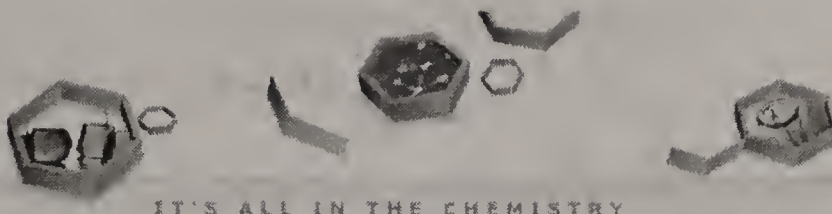


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Appendix C

Laboratory Data



04/29/09

Technical Report for

GEI Consultants, Inc.

GEI Tufts Street Somerville MA

045163

Accutest Job Number: M82272

Sampling Date: 04/22/09

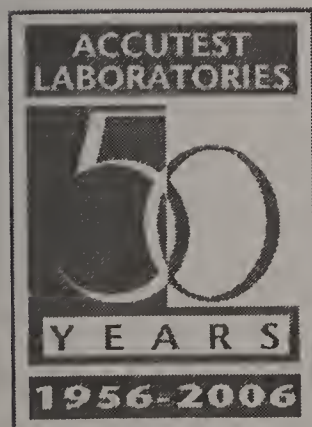
Report to:

GEI Consultants, Inc.

Nslagowski@geiconsultants.com

ATTN: Naomi Slagowski

Total number of pages in report: 194



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Reza Pand
Lab Director

Client Service contact: Kristen Blanchard 508-481-6200

Certifications: MA (M-MA136) CT (PH-0109) NH (2502) RI (00071) ME (MA0136) FL (E87579)
NY (11791) NJ (MA926) PA (68-01121) NC (653) IL (200018) NAVY USACE

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

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Sample Summary

GEI Consultants, Inc.

Job No: M82272

GEI Tufts Street Somerville MA
Project No: 045163

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
M82272-1	04/22/09	12:40 NLS	04/23/09	SO	Soil	045163-CB19SED
M82272-2	04/22/09	12:30 NLS	04/23/09	SO	Soil	045163-CB20SED
M82272-3	04/22/09	12:25 NLS	04/23/09	SO	Soil	045163-CB33SED
M82272-4	04/22/09	12:10 NLS	04/23/09	SO	Soil	045163-CB34SED

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: GEI Consultants, Inc.

Job No M82272

Site: GEI Tufts Street Somerville MA

Report Date 4/28/2009 5:14:40 PM

4 Sample(s) were collected on 04/22/2009 and were received at Accutest on 04/23/2009 properly preserved, at 2 Deg. C and intact. These Samples received an Accutest job number of M82272. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix	SO	Batch ID:	MSK1192
--------	----	-----------	---------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) M82031-1MS, M82031-1MSD were used as the QC samples indicated.
- Only selected compounds requested.

Matrix	SO	Batch ID:	MSK1193
--------	----	-----------	---------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) M82136-1MS, M82136-1MSD were used as the QC samples indicated.

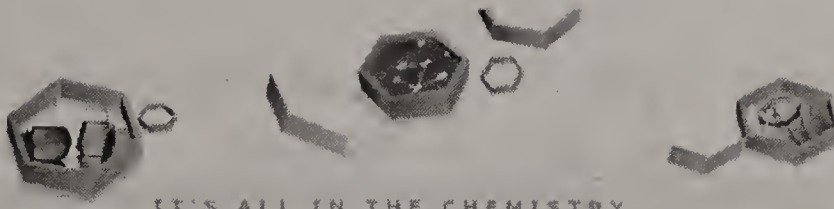
Wet Chemistry By Method SM21 2540 B MOD.

Matrix	SO	Batch ID:	GN28761
--------	----	-----------	---------

- Sample(s) M82272-2DUP were used as the QC samples for Solids, Percent.

Note: Compounds whose QC limits are outside MCP criteria are designated by the lab as "Difficult". QC criteria for a "Difficult" compound may meet Accutest in-house generated QC criteria but exceed MCP criteria (compounds exceeding Accutest QC criteria are flagged on the QC summary). Refer to the QC summary pages.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(M82272).



IT'S ALL IN THE CHEMISTRY

Section 3

3

Sample Results

Report of Analysis

Accutest LabLink@92866 09:46 29-Apr-2009

Report of Analysis

Page 1 of 1

Client Sample ID: 045163-CB19SED

Lab Sample ID: M82272-1

Date Sampled: 04/22/09

Matrix: SO - Soil

Date Received: 04/23/09

Method: SW846 8260B

Percent Solids: 76.0

Project: GEI Tufts Street Somerville MA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K33859.D	1	04/24/09	RT	n/a	n/a	MSK1192
Run #2	K33892.D	1	04/27/09	RT	n/a	n/a	MSK1193

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	17.6 g	10.0 ml	100 ul
Run #2	17.6 g	10.0 ml	25.0 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
56-23-5	Carbon tetrachloride	ND	110	19	ug/kg	
75-00-3	Chloroethane	ND	270	43	ug/kg	
75-34-3	1,1-Dichloroethane	ND	110	16	ug/kg	
107-06-2	1,2-Dichloroethane	ND	110	14	ug/kg	
75-35-4	1,1-Dichloroethene	ND	110	41	ug/kg	
156-59-2	cis-1,2-Dichloroethene	86.3	110	31	ug/kg	J
156-60-5	trans-1,2-Dichloroethene	ND	110	38	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	110	11	ug/kg	
127-18-4	Tetrachloroethene	27000 ^a	430	35	ug/kg	
71-55-6	1,1,1-Trichloroethane	169	110	17	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	110	10	ug/kg	
79-01-6	Trichloroethene	221	110	18	ug/kg	
75-01-4	Vinyl chloride	ND	110	32	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%	96%	70-142%
2037-26-5	Toluene-D8	103%	102%	79-125%
460-00-4	4-Bromofluorobenzene	99%	98%	71-137%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	045163-CB20SED	Date Sampled:	04/22/09
Lab Sample ID:	M82272-2	Date Received:	04/23/09
Matrix:	SO - Soil	Percent Solids:	76.0
Method:	SW846 8260B		
Project:	GEI Tufts Street Somerville MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K33860.D	1	04/24/09	RT	n/a	n/a	MSK1192
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	19.0 g	10.0 ml	100 ul
Run #2			

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
56-23-5	Carbon tetrachloride	ND	100	18	ug/kg	
75-00-3	Chloroethane	ND	250	41	ug/kg	
75-34-3	1,1-Dichloroethane	ND	100	15	ug/kg	
107-06-2	1,2-Dichloroethane	ND	100	13	ug/kg	
75-35-4	1,1-Dichloroethene	ND	100	39	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	100	29	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	100	36	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	11	ug/kg	
127-18-4	Tetrachloroethene	ND	100	8.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	16	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	9.5	ug/kg	
79-01-6	Trichloroethene	ND	100	17	ug/kg	
75-01-4	Vinyl chloride	ND	100	30	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-142%
2037-26-5	Toluene-D8	103%		79-125%
460-00-4	4-Bromofluorobenzene	100%		71-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Client Sample ID: 045163-CB33SED**Lab Sample ID:** M82272-3**Date Sampled:** 04/22/09**Matrix:** SO - Soil**Date Received:** 04/23/09**Method:** SW846 8260B**Percent Solids:** 76.0**Project:** GEI Tufts Street Somerville MA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K33861.D	1	04/24/09	RT	n/a	n/a	MSK1192
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	16.6 g	10.0 ml	100 ul
Run #2			

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
56-23-5	Carbon tetrachloride	ND	110	20	ug/kg	
75-00-3	Chloroethane	ND	280	45	ug/kg	
75-34-3	1,1-Dichloroethane	ND	110	16	ug/kg	
107-06-2	1,2-Dichloroethane	ND	110	14	ug/kg	
75-35-4	1,1-Dichloroethene	ND	110	43	ug/kg	
156-59-2	cis-1,2-Dichloroethene	256	110	32	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	110	39	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	110	12	ug/kg	
127-18-4	Tetrachloroethene	2790	110	9.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	104	110	18	ug/kg	J
79-00-5	1,1,2-Trichloroethane	ND	110	10	ug/kg	
79-01-6	Trichloroethene	375	110	19	ug/kg	
75-01-4	Vinyl chloride	ND	110	33	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-142%
2037-26-5	Toluene-D8	103%		79-125%
460-00-4	4-Bromofluorobenzene	101%		71-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Client Sample ID:	045163-CB34SED	Date Sampled:	04/22/09
Lab Sample ID:	M82272-4	Date Received:	04/23/09
Matrix:	SO - Soil	Percent Solids:	76.0
Method:	SW846 8260B		
Project:	GEI Tufts Street Somerville MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K33862.D	1	04/24/09	RT	n/a	n/a	MSK1192
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	14.3 g	10.0 ml	100 ul
Run #2			

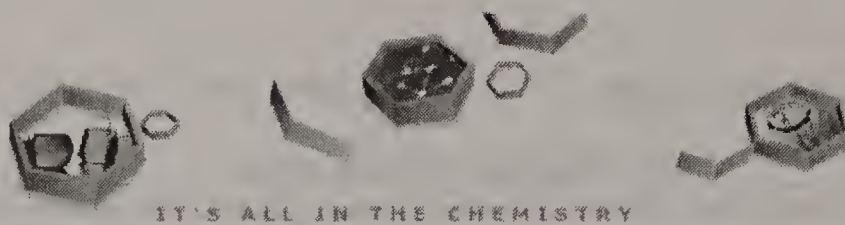
VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
56-23-5	Carbon tetrachloride	ND	120	22	ug/kg	
75-00-3	Chloroethane	ND	310	50	ug/kg	
75-34-3	1,1-Dichloroethane	ND	120	18	ug/kg	
107-06-2	1,2-Dichloroethane	ND	120	16	ug/kg	
75-35-4	1,1-Dichloroethene	ND	120	48	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	120	36	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	120	44	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	120	13	ug/kg	
127-18-4	Tetrachloroethene	200	120	10	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	120	20	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	120	12	ug/kg	
79-01-6	Trichloroethene	ND	120	21	ug/kg	
75-01-4	Vinyl chloride	ND	120	37	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-142%
2037-26-5	Toluene-D8	104%		79-125%
460-00-4	4-Bromofluorobenzene	101%		71-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Parameter Certifications (MA)
- Chain of Custody
- MCP Form
- Sample Tracking Chronicle
- Internal Chain of Custody

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- Chloroethane
- Carbon Tetrachloride
- 1,1-Dichloroethane
- 1,1-Dichloroethylene
- 1,2-Dichloroethane
- trans-1,2-Dichloroethylene
- cis-1,2-Dichloroethylene
- 1,1,1-Trichloroethane
- 1,1,2,2-Tetrachloroethane
- 1,1,2-Trichloroethane
- Tetrachloroethylene
- Trichloroethylene
- Vinyl Chloride

M82272: Chain of Custody
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Massachusetts Department
of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-CAM

Exhibit VII A-1

21 May 2004

Revision No. 3.2

Final

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Title: MADEP MCP Response Action Analytical Report Certification Form

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MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Accutest Laboratories of New England

Project #: M82272

Project Location: GEI Tufts Street Somerville MA

MADEP RTN¹ None

This form provides certifications for the following data set:
M82272-1,M82272-2,M82272-3,M82272-4

Sample Matrices: Groundwater Soil/Sediment X Drinking Water () D () ()

MCP SW-846	8260B (X)	8151A ()	8330 ()	6010B ()	7470A/1A ()
Methods Used	8270C ()	8081A ()	VPH ()	6020 ()	9014M ² ()
As specified in MADEP	8082 ()	8021B ()	EPH ()	7000 S ³ ()	7196A ()

Compendium of
Analytical Methods.

(Check all that apply)

1 List Release Tracking Number (RTN), if known

2 M - SW-846 Method 9014 or MADEP Physiologically Available Cyanide (PAC) Method

3 S - SW-846 Methods 7000 Series List individual method and analyte

An affirmative response to questions A, B, C, and D is required for "Presumptive Certainty status"

A	Were all samples received by the laboratory in a condition consistent with that described on the Chain-of-Custody documentation for the data set?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No ¹
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No ¹
C	Does the data included in this report meet all the analytical requirements for "Presumptive Certainty", as described in Section 2.0 (a), (b), (c) and (d) of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No ¹
D	VPH and EPH methods only: Was the VPH or EPH method run without significant modifications, as specified in Section 11.3?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No ¹

A response to questions E and F below is required for "Presumptive Certainty" status

E	Were all QC performance standards and recommendations for the specified methods achieved?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No ¹
		Refer to Narrative		
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/> No ¹
		Refer to Narrative		

¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

I the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:

Position:

Laboratory Director

Printed Name:

Reza Tand

Date:

04/28/2009

Internal Sample Tracking Chronicle

GEI Consultants, Inc.

Job No: M82272

GEI Tufts Street Somerville MA
Project No: 045163

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
M82272-1 Collected: 22-APR-09 12:40 By: NLS Received: 23-APR-09 By: 045163-CB19SED						
M82272-1	SM21 2540 B MOD.	24-APR-09	MS			%SOL
M82272-1	SW846 8260B	24-APR-09 20:28	RT			V8260SL
M82272-1	SW846 8260B	27-APR-09 12:30	RT			V8260SL
M82272-2 Collected: 22-APR-09 12:30 By: NLS Received: 23-APR-09 By: 045163-CB20SED						
M82272-2	SM21 2540 B MOD.	24-APR-09	MS			%SOL
M82272-2	SW846 8260B	24-APR-09 20:54	RT			V8260SL
M82272-3 Collected: 22-APR-09 12:25 By: NLS Received: 23-APR-09 By: 045163-CB33SED						
M82272-3	SM21 2540 B MOD.	24-APR-09	MS			%SOL
M82272-3	SW846 8260B	24-APR-09 21:19	RT			V8260SL
M82272-4 Collected: 22-APR-09 12:10 By: NLS Received: 23-APR-09 By: 045163-CB34SED						
M82272-4	SM21 2540 B MOD.	24-APR-09	MS			%SOL
M82272-4	SW846 8260B	24-APR-09 21:45	RT			V8260SL

Accutest Internal Chain of Custody

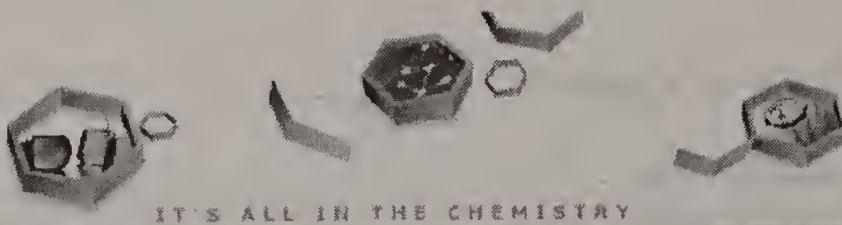
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Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA
Received: 04/23/09

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Sample Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
M82272-1.2	VOC Ref #10	Robert Treggiari	04/24/09 15:53	Retrieve from Storage
M82272-1.2	Robert Treggiari	GCMSK	04/24/09 15:53	Load on Instrument
M82272-1.2	GCMSK	Robert Treggiari	04/27/09 16:31	Unload from Instrument
M82272-1.2	Robert Treggiari	VOC Ref #10	04/27/09 16:31	Return to Storage
M82272-2.1	Walk In Ref #9	Maria Szemiot	04/24/09 11:21	Retrieve from Storage
M82272-2.1	Maria Szemiot	Walk In Ref #9	04/24/09 11:45	Return to Storage
M82272-2.2	VOC Ref #10	Robert Treggiari	04/24/09 15:53	Retrieve from Storage
M82272-2.2	Robert Treggiari	GCMSK	04/24/09 15:53	Load on Instrument
M82272-2.2	GCMSK	Robert Treggiari	04/27/09 16:31	Unload from Instrument
M82272-2.2	Robert Treggiari	VOC Ref #10	04/27/09 16:31	Return to Storage
M82272-3.2	VOC Ref #10	Robert Treggiari	04/24/09 15:53	Retrieve from Storage
M82272-3.2	Robert Treggiari	GCMSK	04/24/09 15:53	Load on Instrument
M82272-3.2	GCMSK	Robert Treggiari	04/27/09 16:31	Unload from Instrument
M82272-3.2	Robert Treggiari	VOC Ref #10	04/27/09 16:31	Return to Storage
M82272-4.1	VOC Ref #10	Robert Treggiari	04/24/09 15:53	Retrieve from Storage
M82272-4.1	Robert Treggiari	GCMSK	04/24/09 15:53	Load on Instrument
M82272-4.1	GCMSK	Robert Treggiari	04/27/09 16:31	Unload from Instrument
M82272-4.1	Robert Treggiari	VOC Ref #10	04/27/09 16:31	Return to Storage



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK1192-MB	K33855.D	1	04/24/09	RT	n/a	n/a	MSK1192

The QC reported here applies to the following samples: Method: SW846 8260B

M82272-1, M82272-2, M82272-3, M82272-4

CAS No.	Compound	Result	RL	MDL	Units	Q
56-23-5	Carbon tetrachloride	ND	100	18	ug/kg	
75-00-3	Chloroethane	ND	250	40	ug/kg	
75-34-3	1,1-Dichloroethane	ND	100	15	ug/kg	
107-06-2	1,2-Dichloroethane	ND	100	13	ug/kg	
75-35-4	1,1-Dichloroethene	ND	100	39	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	100	29	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	100	35	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	11	ug/kg	
127-18-4	Tetrachloroethene	ND	100	8.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	16	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	9.4	ug/kg	
79-01-6	Trichloroethene	ND	100	17	ug/kg	
75-01-4	Vinyl chloride	ND	100	30	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	100% 70-142%
2037-26-5	Toluene-D8	102% 79-125%
460-00-4	4-Bromofluorobenzene	99% 71-137%

Method Blank Summary

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK1193-MB	K33890.D	1	04/27/09	RT	n/a	n/a	MSK1193

The QC reported here applies to the following samples: **Method:** SW846 8260B

M82272-1

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	100	8.2	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	96% 70-142%
2037-26-5	Toluene-D8	100% 79-125%
460-00-4	4-Bromofluorobenzene	96% 71-137%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Blank Spike/Blank Spike Duplicate Summary

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK1192-BS	K33851.D	1	04/24/09	RT	n/a	n/a	MSK1192
MSK1192-BSD	K33852.D	1	04/24/09	RT	n/a	n/a	MSK1192

The QC reported here applies to the following samples: Method: SW846 8260B

M82272-1, M82272-2, M82272-3, M82272-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
56-23-5	Carbon tetrachloride	2500	2660	106	2550	102	4	70-143/25
75-00-3	Chloroethane	2500	2410	96	2420	97	0	61-149/25
75-34-3	1,1-Dichloroethane	2500	2500	100	2370	95	5	74-127/25
107-06-2	1,2-Dichloroethane	2500	2480	99	2440	98	2	72-130/25
75-35-4	1,1-Dichloroethene	2500	2470	99	2320	93	6	70-130/25
156-59-2	cis-1,2-Dichloroethene	2500	2350	94	2320	93	1	73-130/25
156-60-5	trans-1,2-Dichloroethene	2500	2430	97	2380	95	2	76-130/25
79-34-5	1,1,2,2-Tetrachloroethane	2500	2520	101	2520	101	0	70-130/25
127-18-4	Tetrachloroethene	2500	2490	100	2420	97	3	72-130/25
71-55-6	1,1,1-Trichloroethane	2500	2580	103	2540	102	2	72-130/25
79-00-5	1,1,2-Trichloroethane	2500	2530	101	2510	100	1	78-123/25
79-01-6	Trichloroethene	2500	2520	101	2440	98	3	79-124/25
75-01-4	Vinyl chloride	2500	2660	106	2440	98	9	50-160/25

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	99%	97%	70-142%
2037-26-5	Toluene-D8	104%	101%	79-125%
460-00-4	4-Bromofluorobenzene	101%	99%	71-137%

Blank Spike/Blank Spike Duplicate Summary

Job Number: M82272

Account: GEI GEI Consultants, Inc.

Project: GEI Tufts Street Somerville MA

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Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK1193-BS	K33887.D	1	04/27/09	RT	n/a	n/a	MSK1193
MSK1193-BSD	K33888.D	1	04/27/09	RT	n/a	n/a	MSK1193

The QC reported here applies to the following samples:

Method: SW846 8260B

M82272-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
127-18-4	Tetrachloroethene	2500	2490	100	2400	96	4	72-130/25

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	97%	95%	70-142%
2037-26-5	Toluene-D8	103%	98%	79-125%
460-00-4	4-Bromofluorobenzene	98%	94%	71-137%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
M82031-1MS	K33857.D	1	04/24/09	RT	n/a	n/a	MSK1192
M82031-1MSD	K33858.D	1	04/24/09	RT	n/a	n/a	MSK1192
M82031-1	K33856.D	1	04/24/09	RT	n/a	n/a	MSK1192

The QC reported here applies to the following samples: Method: SW846 8260B

M82272-1, M82272-2, M82272-3, M82272-4

CAS No.	Compound	M82031-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
56-23-5	Carbon tetrachloride	ND	254000	267000	105	258000	102	3	50-159/30
75-00-3	Chloroethane	ND	254000	257000	101	244000	96	5	41-160/30
75-34-3	1,1-Dichloroethane	ND	254000	254000	100	244000	96	4	55-154/30
107-06-2	1,2-Dichloroethane	ND	254000	251000	99	249000	98	1	54-156/30
75-35-4	1,1-Dichloroethene	ND	254000	251000	99	246000	97	2	55-155/30
156-59-2	cis-1,2-Dichloroethene	ND	254000	245000	97	234000	92	5	58-152/30
156-60-5	trans-1,2-Dichloroethene	ND	254000	249000	98	237000	93	5	59-153/30
79-34-5	1,1,2,2-Tetrachloroethane	ND	254000	259000	102	255000	101	2	33-176/30
127-18-4	Tetrachloroethene	ND	254000	250000	99	244000	96	2	55-142/30
71-55-6	1,1,1-Trichloroethane	ND	254000	268000	106	254000	100	5	56-156/30
79-00-5	1,1,2-Trichloroethane	ND	254000	260000	102	257000	101	1	56-153/30
79-01-6	Trichloroethene	ND	254000	258000	102	248000	98	4	55-150/30
75-01-4	Vinyl chloride	ND	254000	269000	106	254000	100	6	26-180/30

CAS No.	Surrogate Recoveries	MS	MSD	M82031-1	Limits
1868-53-7	Dibromofluoromethane	100%	96%	99%	70-142%
2037-26-5	Toluene-D8	104%	100%	103%	79-125%
460-00-4	4-Bromofluorobenzene	105%	100%	103%	71-137%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: M82272

Account: GEI GEI Consultants, Inc.

Project: GEI Tufts Street Somerville MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
M82136-1MS	K33902.D	1	04/27/09	RT	n/a	n/a	MSK1193
M82136-1MSD	K33903.D	1	04/27/09	RT	n/a	n/a	MSK1193
M82136-1 ^a	K33901.D	1	04/27/09	RT	n/a	n/a	MSK1193

The QC reported here applies to the following samples:

Method: SW846 8260B

M82272-1

CAS No.	Compound	M82136-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
127-18-4	Tetrachloroethene	ND	23200	22600	97	22500	97	0	55-142/30

CAS No.	Surrogate Recoveries	MS	MSD	M82136-1	Limits
1868-53-7	Dibromofluoromethane	96%	94%	98%	70-142%
2037-26-5	Toluene-D8	100%	97%	101%	79-125%
460-00-4	4-Bromofluorobenzene	95%	92%	101%	71-137%

(a) Elevated RL due to dilution required for matrix interference.

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample:	MSK1192-BFB	Injection Date:	04/24/09
Lab File ID:	K33837.D	Injection Time:	10:51
Instrument ID:	GCMSK		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	20144	16.4	Pass
75	30.0 - 60.0% of mass 95	52896	43.1	Pass
95	Base peak, 100% relative abundance	122624	100.0	Pass
96	5.0 - 9.0% of mass 95	8607	7.0	Pass
173	Less than 2.0% of mass 174	0	0.0 (0.0) ^a	Pass
174	50.0 - 100.0% of mass 95	115192	93.9	Pass
175	5.0 - 9.0% of mass 174	8678	7.1 (7.5) ^a	Pass
176	95.0 - 101.0% of mass 174	110832	90.4 (96.2) ^a	Pass
177	5.0 - 9.0% of mass 176	7674	6.3 (6.9) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSK1192-IC1192	K33843.D	04/24/09	13:30	02:39	Initial cal 25
MSK1192-IC1192	K33844.D	04/24/09	13:56	03:05	Initial cal 5
MSK1192-IC1192	K33845.D	04/24/09	14:22	03:31	Initial cal 2
MSK1192-IC1192	K33846.D	04/24/09	14:49	03:58	Initial cal 0.5
MSK1192-IC1192	K33847.D	04/24/09	15:15	04:24	Initial cal 400
MSK1192-IC1192	K33848.D	04/24/09	15:41	04:50	Initial cal 200
MSK1192-IC1192	K33849.D	04/24/09	16:07	05:16	Initial cal 100
MSK1192-ICC1192	K33850.D	04/24/09	16:34	05:43	Initial cal 50
MSK1192-ICV1192	K33851.D	04/24/09	17:00	06:09	Initial cal verification 50
MSK1192-BS	K33851.D	04/24/09	17:00	06:09	Blank Spike
MSK1192-BSD	K33852.D	04/24/09	17:26	06:35	Blank Spike Duplicate
MSK1192-CC1192	K33853.D	04/24/09	17:51	07:00	Continuing cal 100
MSK1192-MB	K33855.D	04/24/09	18:44	07:53	Method Blank
M82031-1	K33856.D	04/24/09	19:10	08:19	(used for QC only; not part of job M82272)
M82031-1MS	K33857.D	04/24/09	19:36	08:45	Matrix Spike
M82031-1MSD	K33858.D	04/24/09	20:02	09:11	Matrix Spike Duplicate
M82272-1	K33859.D	04/24/09	20:28	09:37	045163-CB19SED
M82272-2	K33860.D	04/24/09	20:54	10:03	045163-CB20SED
M82272-3	K33861.D	04/24/09	21:19	10:28	045163-CB33SED
M82272-4	K33862.D	04/24/09	21:45	10:54	045163-CB34SED
ZZZZZZ	K33863.D	04/24/09	22:11	11:20	(unrelated sample)

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: MSK1193-BFB Injection Date: 04/27/09
Lab File ID: K33885.D Injection Time: 09:40
Instrument ID: GCMSK

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	17688	15.1	Pass
75	30.0 - 60.0% of mass 95	48280	41.2	Pass
95	Base peak, 100% relative abundance	117072	100.0	Pass
96	5.0 - 9.0% of mass 95	8472	7.2	Pass
173	Less than 2.0% of mass 174	0	0.0 (0.0) ^a	Pass
174	50.0 - 100.0% of mass 95	112056	95.7	Pass
175	5.0 - 9.0% of mass 174	8466	7.2 (7.6) ^a	Pass
176	95.0 - 101.0% of mass 174	106512	91.0 (95.1) ^a	Pass
177	5.0 - 9.0% of mass 176	7358	6.3 (6.9) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSK1193-CC1192	K33886.D	04/27/09	09:54	00:14	Continuing cal 100
MSK1193-BS	K33887.D	04/27/09	10:20	00:40	Blank Spike
MSK1193-BSD	K33888.D	04/27/09	10:46	01:06	Blank Spike Duplicate
MSK1193-MB	K33890.D	04/27/09	11:38	01:58	Method Blank
ZZZZZZ	K33891.D	04/27/09	12:04	02:24	(unrelated sample)
M82272-1	K33892.D	04/27/09	12:30	02:50	045163-CB19SED
ZZZZZZ	K33894.D	04/27/09	13:22	03:42	(unrelated sample)
ZZZZZZ	K33895.D	04/27/09	13:48	04:08	(unrelated sample)
ZZZZZZ	K33896.D	04/27/09	14:14	04:34	(unrelated sample)
ZZZZZZ	K33897.D	04/27/09	14:40	05:00	(unrelated sample)
ZZZZZZ	K33898.D	04/27/09	15:06	05:26	(unrelated sample)
ZZZZZZ	K33899.D	04/27/09	15:33	05:53	(unrelated sample)
ZZZZZZ	K33900.D	04/27/09	15:59	06:19	(unrelated sample)
M82136-1	K33901.D	04/27/09	16:26	06:46	(used for QC only; not part of job M82272)
M82136-1MS	K33902.D	04/27/09	16:52	07:12	Matrix Spike
M82136-1MSD	K33903.D	04/27/09	17:19	07:39	Matrix Spike Duplicate
ZZZZZZ	K33905.D	04/27/09	18:11	08:31	(unrelated sample)
ZZZZZZ	K33906.D	04/27/09	18:37	08:57	(unrelated sample)
ZZZZZZ	K33907.D	04/27/09	19:03	09:23	(unrelated sample)
ZZZZZZ	K33908.D	04/27/09	19:29	09:49	(unrelated sample)
ZZZZZZ	K33909.D	04/27/09	19:55	10:15	(unrelated sample)
ZZZZZZ	K33910.D	04/27/09	20:21	10:41	(unrelated sample)
ZZZZZZ	K33911.D	04/27/09	20:47	11:07	(unrelated sample)
ZZZZZZ	K33912.D	04/27/09	21:13	11:33	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Check Std:	MSK1192-ICC1192	Injection Date:	04/24/09
Lab File ID:	K33850.D	Injection Time:	16:34
Instrument ID:	GCMSK	Method:	SW846 8260B

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	216462	9.06	292773	9.93	116629	13.19	136798	15.76	55760	6.66
Upper Limit ^a	432924	9.56	585546	10.43	233258	13.69	273596	16.26	111520	7.16
Lower Limit ^b	108231	8.56	146387	9.43	58315	12.69	68399	15.26	27880	6.16

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSK1192-BS	220091	9.06	293048	9.93	116061	13.19	135102	15.76	56962	6.66
MSK1192-BSD	218350	9.06	292052	9.93	116154	13.19	133730	15.76	57231	6.66

- IS 1 = Pentafluorobenzene
- IS 2 = 1,4-Difluorobenzene
- IS 3 = Chlorobenzene-D5
- IS 4 = 1,4-Dichlorobenzene-d4
- IS 5 = Tert Butyl Alcohol-D9

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
 (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Page 1 of 1

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Check Std:	MSK1192-CC1192	Injection Date:	04/24/09
Lab File ID:	K33853.D	Injection Time:	17:51
Instrument ID:	GCMSK	Method:	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	214281	9.06	286769	9.93	119266	13.19	137402	15.76	53907	6.66
Upper Limit ^a	428562	9.56	573538	10.43	238532	13.69	274804	16.26	107814	7.16
Lower Limit ^b	107141	8.56	143385	9.43	59633	12.69	68701	15.26	26954	6.16

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
MSK1192-MB	216767	9.06	290603	9.93	108820	13.19	128487	15.76	61222	6.69
M82031-1	210561	9.06	283046	9.93	109794	13.19	132009	15.76	61789	6.69
M82031-1MS	210262	9.06	282287	9.93	114032	13.19	138100	15.75	57124	6.66
M82031-1MSD	214290	9.06	286024	9.93	115085	13.19	137247	15.76	55051	6.66
M82272-1	216156	9.06	289934	9.93	110015	13.19	130057	15.76	60859	6.67
M82272-2	210658	9.06	284116	9.93	107598	13.19	126787	15.76	60109	6.66
M82272-3	215104	9.06	288062	9.93	108360	13.19	128942	15.76	59467	6.67
M82272-4	214775	9.06	287110	9.93	107167	13.19	127402	15.76	59103	6.68
ZZZZZZ	215711	9.06	286325	9.93	111054	13.19	135025	15.76	59655	6.70

IS 1 = Pentafluorobenzene
IS 2 = 1,4-Difluorobenzene
IS 3 = Chlorobenzene-D5
IS 4 = 1,4-Dichlorobenzene-d4
IS 5 = Tert Butyl Alcohol-D9

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Page 1 of 1

Job Number: M82272

Account: GEI GEI Consultants, Inc.

Project: GEI Tufts Street Somerville MA

Check Std:	MSK1193-CC1192	Injection Date:	04/27/09
Lab File ID:	K33886.D	Injection Time:	09:54
Instrument ID:	GCM SK	Method:	SW846 8260B

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	207175	9.06	277995	9.93	118333	13.19	141290	15.76	42969	6.67
Upper Limit ^a	414350	9.56	555990	10.43	236666	13.69	282580	16.26	85938	7.17
Lower Limit ^b	103588	8.56	138998	9.43	59167	12.69	70645	15.26	21485	6.17

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
MSK1193-BS	215145	9.06	286510	9.93	116750	13.19	138648	15.76	49262	6.66
MSK1193-BSD	217535	9.06	290761	9.93	115551	13.19	138942	15.76	50297	6.66
MSK1193-MB	212326	9.06	285816	9.93	107203	13.20	129381	15.76	58307	6.68
ZZZZZZ	214580	9.06	287848	9.93	107840	13.20	135343	15.76	59488	6.73
M82272-1	213530	9.06	283684	9.93	107130	13.20	130213	15.76	60468	6.68
ZZZZZZ	217924	9.06	289035	9.93	109648	13.19	133959	15.76	60753	6.68
ZZZZZZ	216877	9.06	289083	9.93	108804	13.19	135838	15.76	61656	6.70
ZZZZZZ	218109	9.06	292202	9.93	110208	13.20	137044	15.76	66170	6.70
ZZZZZZ	221420	9.06	297397	9.93	111339	13.19	136598	15.76	58796	6.67
ZZZZZZ	222443	9.06	297601	9.93	112005	13.20	139998	15.76	63873	6.74
ZZZZZZ	222495	9.06	297682	9.93	112454	13.20	141786	15.76	66786	6.74
ZZZZZZ	221388	9.06	297972	9.93	113671	13.20	141612	15.76	69678	6.75
M82136-1	221286	9.06	300397	9.93	112884	13.20	131990	15.76	67360	6.70
M82136-1MS	214399	9.06	285071	9.93	116234	13.19	140371	15.76	62126	6.66
M82136-1MSD	215807	9.06	288059	9.93	114479	13.19	139023	15.76	66474	6.65
ZZZZZZ	215982	9.06	286927	9.93	111456	13.20	138535	15.76	66139	6.74
ZZZZZZ	228938	9.06	301654	9.93	113758	13.19	144777	15.76	62870	6.72
ZZZZZZ	222823	9.06	295785	9.93	111816	13.20	135765	15.76	68124	6.69
ZZZZZZ	229265	9.06	302685	9.93	114032	13.20	136848	15.76	64873	6.68
ZZZZZZ	221568	9.06	294469	9.93	111052	13.20	136825	15.76	66503	6.67
ZZZZZZ	219035	9.06	291750	9.93	110540	13.20	138385	15.76	61413	6.66
ZZZZZZ	223087	9.06	296283	9.93	112234	13.20	138293	15.76	69328	6.65
ZZZZZZ	224784	9.06	297172	9.93	112711	13.20	144104	15.76	63782	6.75

IS 1 = Pentafluorobenzene
IS 2 = 1,4-Difluorobenzene
IS 3 = Chlorobenzene-D5
IS 4 = 1,4-Dichlorobenzene-d4
IS 5 = Tert Butyl Alcohol-D9

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.

(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Surrogate Recovery Summary

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Method: SW846 8260B **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
M82272-1	K33892.D	96.0	102.0	98.0
M82272-1	K33859.D	97.0	103.0	99.0
M82272-2	K33860.D	99.0	103.0	100.0
M82272-3	K33861.D	99.0	103.0	101.0
M82272-4	K33862.D	99.0	104.0	101.0
M82031-1MS	K33857.D	100.0	104.0	105.0
M82031-1MSD	K33858.D	96.0	100.0	100.0
M82136-1MS	K33902.D	96.0	100.0	95.0
M82136-1MSD	K33903.D	94.0	97.0	92.0
MSK1192-BS	K33851.D	99.0	104.0	101.0
MSK1192-BSD	K33852.D	97.0	101.0	99.0
MSK1192-MB	K33855.D	100.0	102.0	99.0
MSK1193-BS	K33887.D	97.0	103.0	98.0
MSK1193-BSD	K33888.D	95.0	98.0	94.0
MSK1193-MB	K33890.D	96.0	100.0	96.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	70-142%
S2 = Toluene-D8	79-125%
S3 = 4-Bromofluorobenzene	71-137%

Initial Calibration Summary

Page 1 of 5

Job Number: M82272
 Account: GEI GEI Consultants, Inc.
 Project: GEI Tufts Street Somerville MA

Sample: MSK1192-ICC1192
 Lab FileID: K33850.D

Response Factor Report gcms k

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Initial Calibration

Calibration Files

0.5 =K33846.D 2 =K33845.D 5 =K33844.D 50 =K33850.D
 100 =K33849.D 200 =K33848.D 400 =K33847.D 25 =K33843.D
 = =

Compound	0.5	2	5	50	100	200	400	25	Avg	%RSD
1) Tert butyl alcohol-d9 -----ISTD-----										
2) tertiary butyl alcohol	1.205	1.299	1.296	1.250	1.236	1.199	1.332		1.260	4.02
3) Ethanol	0.138	0.154	0.152	0.151	0.157	0.154	0.165		0.153	5.33
4) I pentafluorobenzene -----ISTD-----										
5) dichlorodifluoromethane	0.256	0.291	0.288	0.263	0.291	0.291	0.318		0.285	7.20
6) chloromethane	0.272	0.262	0.218	0.204	0.215	0.202	0.231		0.229	12.07
7) vinyl chloride	0.093	0.164	0.163	0.148	0.148	0.147	0.181		0.149	18.47
8) bromomethane	0.378	0.284	0.234	0.225	0.218	0.222	0.251		0.259	22.14
----- Linear regression ----- Coefficient = 0.9998										
Response Ratio = 0.00849 + 0.21992 *A										
9) chloroethane	0.189	0.207	0.222	0.217	0.217	0.216	0.240		0.215	7.22
10) ethyl ether	0.373	0.362	0.365	0.363	0.350	0.344	0.391		0.364	4.24
11) acetonitrile	0.023	0.152	0.140	0.138	0.147	0.138	0.150		0.127	36.51
----- Linear regression ----- Coefficient = 0.9988										
Response Ratio = 0.00322 + 0.13924 *A										
12) trichlorofluoromethane	0.595	0.608	0.613	0.571	0.590	0.593	0.649		0.603	4.04
13) freon-113	0.280	0.303	0.344	0.310	0.318	0.305	0.350		0.316	7.68
14) acrolein	0.066	0.068	0.076	0.075	0.070	0.065	0.073		0.071	6.20
15) 1,1-dichloroethene	0.432	0.421	0.379	0.343	0.352	0.341	0.407		0.382	10.04
16) acetone	0.124	0.119	0.118	0.125	0.130	0.122	0.125		0.123	3.36
17) Methyl Acetate	0.656	0.637	0.637	0.613	0.598	0.572	0.603		0.617	4.63
18) methylene chloride	0.498	0.501	0.487	0.433	0.420	0.421	0.406	0.474	0.455	8.56
19) methyl tert butyl ether	1.358	1.405	1.294	1.297	1.279	1.266	1.230	1.311	1.305	4.19
20) acrylonitrile										

Initial Calibration Summary

Page 2 of 5

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: MSK1192-ICC1192
Lab FileID: K33850.D

	0.178	0.169	0.166	0.169	0.156	0.150	0.171	0.165	5.80
21) allyl chloride	0.621	0.618	0.600	0.571	0.547	0.552	0.636	0.592	6.01
22) trans-1,2-dichloroethene	0.558	0.528	0.548	0.508	0.488	0.487	0.475	0.517	6.09
23) iodomethane	0.790	0.762	0.742	0.717	0.716	0.692	0.787	0.744	5.06
24) carbon disulfide	1.084	1.311	1.202	1.175	1.142	1.172	1.163	1.187	5.84
25) propionitrile	0.018	0.056	0.062	0.062	0.060	0.055		0.052	32.71
----- Linear regression ----- Coefficient = 0.9995									
Response Ratio = -0.00174 + 0.06071 *A									
26) vinyl acetate	0.688	0.747	0.825	0.853	0.846	0.833	0.826	0.803	7.66
27) chloroprene	0.530	0.674	0.636	0.678	0.657	0.649	0.626	0.643	8.03
28) di-isopropyl ether	1.370	1.580	1.468	1.356	1.315	1.249	1.121	1.366	10.48
29) methacrylonitrile	0.231	0.257	0.260	0.260	0.256	0.252	0.250	0.252	4.04
30) 2-butanone	0.117	0.079	0.065	0.062	0.060	0.054	0.071	0.073	28.98
----- Quadratic regression ----- Coefficient = 1.0000									
Response Ratio = 0.00200 + 0.06488 *A + -0.00135 *A^2									
31) Hexane	0.548	0.685	0.603	0.558	0.509	0.487	0.439	0.553	13.84
32) 1,1-dichloroethane	0.746	0.882	0.807	0.787	0.759	0.748	0.711	0.783	6.94
33) tert-butyl ethyl ether	1.174	1.426	1.371	1.346	1.314	1.265	1.168	1.306	7.34
34) isobutyl alcohol	0.047	0.044	0.039	0.039	0.037	0.036	0.041	0.040	9.93
35) 2,2-dichloropropane	0.492	0.454	0.452	0.429	0.421	0.419	0.472	0.448	6.14
36) cis-1,2-dichloroethene	0.674	0.628	0.575	0.536	0.518	0.505	0.482	0.561	11.53
37) ethyl acetate	0.234	0.220	0.194	0.194	0.185	0.180	0.182	0.198	10.53
38) bromochloromethane	0.339	0.311	0.297	0.293	0.287	0.277	0.307	0.302	6.71
39) chloroform	0.905	0.916	0.869	0.832	0.811	0.789	0.751	0.844	6.90
40) dibromofluoromethane (s)	0.529	0.497	0.492	0.484	0.471	0.460	0.509	0.492	4.71
41) Tetrahydrofuran	0.143	0.123	0.123	0.125	0.126	0.122	0.120	0.126	6.24
42) 1,1,1-trichloroethane	0.511	0.681	0.642	0.659	0.636	0.646	0.633	0.635	8.33
43) n-Butyl Alcohol	0.315	0.413	0.344	0.336	0.315	0.327	0.319	0.342	9.75
44) I 1,4-difluorobenzene	-----ISTD-----								
45) Cyclohexane	0.411	0.369	0.361	0.320	0.340	0.314	0.367	0.355	9.39
46) carbon tetrachloride	0.361	0.448	0.440	0.459	0.435	0.452	0.432	0.437	7.64
47) 1,1-dichloropropene									

Initial Calibration Summary

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Sample: MSK1192-ICC1192
Lab FileID: K33850.D

	0.400	0.477	0.456	0.454	0.431	0.445	0.431	0.462	0.444	5.35
48) benzene	1.449	1.609	1.461	1.351	1.278	1.270	1.149	1.422	1.373	10.37
49) 1,2-dichloroethane	0.392	0.473	0.434	0.419	0.409	0.419	0.416	0.428	0.424	5.57
50) tert-amyl methyl ether	0.819	0.976	0.899	0.945	0.924	0.924	0.865	0.976	0.916	5.92
51) heptane	0.357	0.437	0.399	0.371	0.337	0.352	0.321	0.390	0.370	10.02
52) 2-Nitropropane	2.841	4.761	4.788	4.638	4.580	4.320	4.897		4.403	16.20
----- Linear regression ----- Coefficient = 0.9990										
Response Ratio = 0.31649 + 4.33275 *A										
53) trichloroethene	0.366	0.410	0.396	0.378	0.363	0.364	0.346	0.394	0.377	5.62
54) 1,2-dichloropropane	0.358	0.343	0.324	0.313	0.310	0.281	0.341		0.324	7.91
55) dibromomethane	0.222	0.205	0.206	0.204	0.207	0.198	0.211		0.208	3.64
56) bromodichloromethane	0.455	0.413	0.438	0.439	0.450	0.436	0.443		0.439	3.07
57) Methylcyclohexane	0.407	0.396	0.395	0.355	0.370	0.349	0.415		0.384	6.74
58) 2-chloroethyl vinyl ether	0.003	0.011	0.012	0.013	0.013	0.010			0.010	37.82
----- Linear regression ----- Coefficient = 0.9998										
Response Ratio = -0.00169 + 0.01311 *A										
59) methyl methacrylate	0.174	0.175	0.222	0.231	0.236	0.226	0.212		0.211	12.20
60) 1,4-dioxane	0.000	0.003	0.003	0.003	0.003	0.002			0.003	46.68
----- Linear regression ----- Coefficient = 0.9983										
Response Ratio = -0.00063 + 0.00335 *A										
61) cis-1,3-dichloropropene	0.445	0.505	0.484	0.505	0.503	0.510	0.487	0.516	0.494	4.60
62) toluene-d8 (s)	0.982	1.326	1.244	1.217	1.183	1.147	1.066	1.263	1.178	9.46
63) 4-methyl-2-pentanone	0.254	0.240	0.271	0.278	0.287	0.280	0.264		0.268	6.06
64) toluene	0.787	0.884	0.849	0.820	0.778	0.755	0.678	0.865	0.802	8.36
65) trans-1,3-dichloropropene	0.394	0.373	0.419	0.423	0.432	0.424	0.414		0.411	5.02
66) 1,1,2-trichloroethane	0.254	0.241	0.248	0.244	0.249	0.235	0.253		0.246	2.81
67) ethyl methacrylate	0.269	0.292	0.352	0.361	0.360	0.331	0.355		0.331	11.15
68) I chlorobenzene-d5	-----ISTD-----									
69) tetrachloroethene	1.012	1.210	1.070	0.995	0.914	0.973	0.895	1.052	1.015	9.79
70) 1,3-dichloropropane	1.243	1.405	1.266	1.175	1.105	1.142	1.058	1.242	1.205	9.04
71) dibromochloromethane	0.855	0.806	0.888	0.876	0.967	0.931	0.893		0.888	5.81
72) 1,2-dibromoethane	0.873	0.808	0.801	0.776	0.840	0.804	0.811		0.816	3.83

Initial Calibration Summary

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Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: MSK1192-ICC1192
Lab FileID: K33850.D

73)	2-hexanone	0.373	0.454	0.487	0.491	0.556	0.520	0.511	0.485	12.04	
74)	chlorobenzene	2.431	2.797	2.551	2.299	2.167	2.290	2.107	2.434	2.385	9.29
75)	1,1,1,2-tetrachloroethane	1.001	0.903	0.894	0.843	0.918	0.874	0.894	0.904	5.41	
76)	ethylbenzene	3.571	3.986	3.708	3.627	3.339	3.521	3.201	3.731	3.586	6.76
77)	m,p-xylene	1.423	1.597	1.529	1.474	1.350	1.398	1.224	1.567	1.445	8.54
78)	o-xylene	1.373	1.564	1.521	1.430	1.319	1.390	1.236	1.521	1.419	7.93
79)	styrene	1.872	1.934	2.237	2.167	2.368	2.202	2.244	2.146	8.31	
80)	bromoform	0.497	0.479	0.571	0.588	0.683	0.684	0.538	0.577	14.24	
81)	trans-1,4-dichloro-2-butene	0.174	0.215	0.222	0.256	0.251	0.211		0.221	13.52	
82)	I 1,4-dichlorobenzene-d	-----ISTD-----									
83)	isopropylbenzene	2.299	2.561	2.490	2.534	2.413	2.377	2.267	2.624	2.446	5.22
84)	bromofluorobenzene (s)	0.941	0.898	0.855	0.848	0.836	0.826	0.895	0.871	4.72	
85)	bromobenzene	0.857	0.992	0.920	0.899	0.879	0.877	0.859	0.919	0.900	4.92
86)	1,1,2,2-tetrachloroethane	0.835	0.786	0.743	0.730	0.707	0.650	0.761	0.745	7.88	
87)	1,2,3-trichloropropane	0.843	0.784	0.820	0.834	0.842	0.830	0.808	0.823	2.58	
88)	n-propylbenzene	2.916	3.280	3.109	3.159	3.008	2.979	2.848	3.226	3.066	4.97
89)	2-chlorotoluene	2.012	2.231	2.104	2.019	1.952	1.928	1.864	2.090	2.025	5.71
90)	4-chlorotoluene	1.810	2.137	2.038	2.055	1.977	1.983	1.905	2.122	2.003	5.48
91)	1,3,5-trimethylbenzene	2.077	2.446	2.401	2.397	2.290	2.277	2.162	2.492	2.318	6.21
92)	tert-butylbenzene	1.178	1.342	1.287	1.257	1.195	1.200	1.145	1.274	1.235	5.34
93)	1,2,4-trimethylbenzene	2.103	2.465	2.438	2.460	2.388	2.360	2.230	2.553	2.375	6.09
94)	sec-butylbenzene	2.884	3.214	3.045	2.968	2.754	2.766	2.545	3.072	2.906	7.34
95)	1,3-dichlorobenzene	1.741	1.906	1.706	1.648	1.619	1.606	1.541	1.689	1.682	6.56
96)	p-isopropyltoluene	2.791	2.896	2.751	2.646	2.475	2.441	2.148	2.725	2.609	9.28
97)	1,4-dichlorobenzene	1.974	2.100	1.848	1.723	1.653	1.599	1.449	1.762	1.763	11.83
98)	1,2-dichlorobenzene	1.725	1.875	1.727	1.675	1.654	1.636	1.534	1.691	1.690	5.72
99)	n-butylbenzene	2.183	2.273	2.212	2.240	2.151	2.164	1.906	2.256	2.173	5.36
100)	1,2-dibromo-3-chloropropane	0.105	0.111	0.107	0.113	0.117	0.117	0.097	0.109	6.44	
101)	1,2,4-trichlorobenzene	0.834	0.835	0.824	0.903	0.913	0.919	0.799	0.770	0.850	6.53
102)	hexachlorobutadiene	0.719	0.614	0.515	0.472	0.448		0.509	0.546	18.69	

Initial Calibration Summary

Job Number: M82272
Account: GEI GEI Consultants, Inc.
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----- Linear regression ----- Coefficient = 0.9987
Response Ratio = 0.03345 + 0.44414 *A

103)	naphthalene	2.215	1.840	1.901	1.981	2.051	2.063	1.786	1.537	1.922	10.77
104)	1,2,3-trichlorobenzene	0.661	0.731	0.693	0.706	0.691	0.559	0.546		0.656	11.18

(#) = Out of Range ### Number of calibration levels exceeded format ###

K042409S.M Mon Apr 27 09:21:13 2009 MSK

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Initial Calibration Verification

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Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: MSK1192-ICV1192
Lab FileID: K33851.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\K33851.D
Acq On : 24 Apr 2009 5:00 pm
Sample : icv1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P

Vial: 10
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev (min)	R.T.
1	Tert butyl alcohol-d9	1.000	1.000	0.0	102	0.00	6.66
2	tertiary butyl alcohol	1.260	1.280	-1.6	101	0.00	6.72
3 T	Ethanol	0.153	0.147	3.9	99	0.00	5.65
4 I	pentafluorobenzene	1.000	1.000	0.0	102	0.00	9.06
5 M	dichlorodifluoromethane	0.285	0.284	0.4	100	0.00	4.35
6 P	chloromethane	0.229	0.207	9.6	97	0.00	4.57
7 c	vinyl chloride	0.149	0.159	-6.7	99	0.00	4.83
	----- True	Calc.	% Drift	-----			
8 M	bromomethane	50.000	50.276	-0.6	100	0.00	5.37
	----- AvgRF	CCRF	% Dev	-----			
9 M	chloroethane	0.215	0.208	3.3	95	0.00	5.50
10 M	ethyl ether	0.364	0.362	0.5	101	0.00	6.35
	----- True	Calc.	% Drift	-----			
11 M	acetonitrile	50.000	49.467	1.1	103	0.00	6.13
	----- AvgRF	CCRF	% Dev	-----			
12 M	trichlorofluoromethane	0.603	0.614	-1.8	102	0.00	6.18
13 M	freon-113	0.316	0.334	-5.7	99	0.00	6.95
14 M	acrolein	0.071	0.076	-7.0	102	0.00	6.11
15 c	1,1-dichloroethene	0.382	0.378	1.0	101	0.00	6.75
16 M	acetone	0.123	0.128	-4.1	110	0.00	6.25
17 M	Methyl Acetate	0.617	0.623	-1.0	99	0.00	6.90
18 M	methylene chloride	0.455	0.432	5.1	102	0.00	6.88
19 M	methyl tert butyl ether	1.305	1.279	2.0	100	0.00	7.64
20 M	acrylonitrile	0.165	0.168	-1.8	103	0.00	6.76
21 M	allyl chloride	0.592	0.557	5.9	94	0.00	6.97
22 M	trans-1,2-dichloroethene	0.517	0.503	2.7	101	0.00	7.56
23 M	iodomethane	0.744	0.739	0.7	101	0.00	6.81
24 M	carbon disulfide	1.187	1.162	2.1	101	0.00	7.16
	----- True	Calc.	% Drift	-----			
25 M	propionitrile	50.000	48.498	3.0	103	0.00	7.85
	----- AvgRF	CCRF	% Dev	-----			
26 M	vinyl acetate	0.803	0.827	-3.0	102	0.00	7.91
27 M	chloroprene	0.643	0.674	-4.8	101	0.00	8.17
28 M	di-isopropyl ether	1.366	1.348	1.3	101	0.00	8.21
29 M	methacrylonitrile	0.252	0.254	-0.8	99	0.00	8.33

Initial Calibration Verification

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Sample: MSK1192-ICV1192
 Lab FileID: K33851.D

		True	Calc.	% Drift			
30 M	2-butanone	50.000	49.538	0.9	101	0.00	8.23
		AvgRF	CCRF	% Dev			
31 M	Hexane	0.553	0.557	-0.7	102	0.00	8.19
32 P	1,1-dichloroethane	0.783	0.784	-0.1	101	0.00	7.81
33 M	tert-butyl ethyl ether	1.306	1.327	-1.6	100	0.00	8.60
34 M	isobutyl alcohol	0.040	0.040	0.0	105	0.00	8.63
35 M	2,2-dichloropropane	0.448	0.444	0.9	100	0.00	8.67
36 M	cis-1,2-dichloroethene	0.561	0.528	5.9	100	0.00	8.37
37 M	ethyl acetate	0.198	0.200	-1.0	105	0.01	8.63
38 M	bromochloromethane	0.302	0.292	3.3	100	0.00	8.54
39 c	chloroform	0.844	0.823	2.5	101	0.00	8.58
40 S	dibromofluoromethane (s)	0.492	0.488	0.8	101	0.00	8.70
41 M	Tetrahydrofuran	0.126	0.120	4.8	99	0.00	8.91
42 M	1,1,1-trichloroethane	0.635	0.654	-3.0	101	0.00	9.35
43	n-Butyl Alcohol	0.342	0.332	2.9	101	0.00	9.34
44 I	1,4-difluorobenzene	1.000	1.000	0.0	100	0.00	9.93
45 M	Cyclohexane	0.355	0.365	-2.8	101	0.00	9.62
46 M	carbon tetrachloride	0.437	0.465	-6.4	101	0.00	9.71
47 M	1,1-dichloropropene	0.444	0.456	-2.7	101	0.00	9.51
48 M	benzene	1.373	1.362	0.8	101	0.00	9.73
49 M	1,2-dichloroethane	0.424	0.421	0.7	101	0.00	9.23
50 M	tert-amyl methyl ether	0.916	0.954	-4.1	101	0.00	9.85
51 M	heptane	0.370	0.381	-3.0	103	0.00	10.21
		True	Calc.	% Drift			
52	2-Nitropropane	50.000	51.381	-2.8	100	0.00	10.33
		AvgRF	CCRF	% Dev			
53 M	trichloroethene	0.377	0.381	-1.1	101	0.00	10.35
54 c	1,2-dichloropropane	0.324	0.326	-0.6	101	0.00	10.32
55 M	dibromomethane	0.208	0.207	0.5	100	0.00	10.29
56 M	bromodichloromethane	0.439	0.441	-0.5	101	0.00	10.41
57 M	Methylcyclohexane	0.384	0.409	-6.5	104	0.00	10.88
		True	Calc.	% Drift			
58 M	2-chloroethyl vinyl ether	50.000	50.218	-0.4	107	0.00	10.78
		AvgRF	CCRF	% Dev			
59 M	methyl methacrylate	0.211	0.224	-6.2	101	0.00	10.50
		True	Calc.	% Drift			
60 M	1,4-dioxane	250.000	207.097	17.2	82	0.00	10.52
		AvgRF	CCRF	% Dev			
61 M	cis-1,3-dichloropropene	0.494	0.509	-3.0	101	0.00	11.02
62 S	toluene-d8 (s)	1.178	1.224	-3.9	101	0.00	11.73
63 M	4-methyl-2-pentanone	0.268	0.271	-1.1	100	0.00	11.12
64 c	toluene	0.802	0.817	-1.9	100	0.00	11.80
65 M	trans-1,3-dichloropropene	0.411	0.415	-1.0	99	0.00	11.44
66 M	1,1,2-trichloroethane	0.246	0.249	-1.2	100	0.00	11.62
67 M	ethyl methacrylate	0.331	0.371	-12.1	106	0.00	11.82
68 I	chlorobenzene-d5	1.000	1.000	0.0	100	0.00	13.19
69 M	tetrachloroethene	1.015	1.012	0.3	101	0.00	12.55
70 M	1,3-dichloropropane	1.205	1.184	1.7	100	0.00	11.85
71 M	dibromochloromethane	0.888	0.883	0.6	99	0.00	12.15

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Initial Calibration Verification

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Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: MSK1192-ICV1192
Lab FileID: K33851.D

72	M	1,2-dibromoethane	0.816	0.800	2.0	99	0.00	12.40
73	M	2-hexanone	0.485	0.498	-2.7	102	0.00	11.98
74	P	chlorobenzene	2.385	2.302	3.5	100	0.00	13.23
75	M	1,1,1,2-tetrachloroethane	0.904	0.898	0.7	100	0.00	13.14
76	c	ethylbenzene	3.586	3.619	-0.9	99	0.00	13.40
77	M	m,p-xylene	1.445	1.495	-3.5	101	0.00	13.59
78	M	o-xylene	1.419	1.444	-1.8	101	0.00	14.00
79	M	styrene	2.146	2.257	-5.2	100	0.00	13.93
80	P	bromoform	0.577	0.571	1.0	100	0.00	13.75
81	M	trans-1,4-dichloro-2-bute	0.221	0.213	3.6	99	0.00	14.15
82	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	99	0.00	15.76
83	M	isopropylbenzene	2.446	2.572	-5.2	100	0.00	14.36
84	S	bromofluorobenzene (s)	0.871	0.876	-0.6	101	0.00	14.42
85	M	bromobenzene	0.900	0.914	-1.6	100	0.00	14.65
86	P	1,1,2,2-tetrachloroethane	0.745	0.751	-0.8	100	0.00	14.00
87	M	1,2,3-trichloropropane	0.823	0.827	-0.5	100	0.00	14.15
88	M	n-propylbenzene	3.066	3.195	-4.2	100	0.00	14.81
89	M	2-chlorotoluene	2.025	2.067	-2.1	101	0.00	14.93
90	M	4-chlorotoluene	2.003	2.071	-3.4	100	0.00	15.00
91	M	1,3,5-trimethylbenzene	2.318	2.428	-4.7	100	0.00	15.08
92	M	tert-butylbenzene	1.235	1.285	-4.0	101	0.00	15.39
93	M	1,2,4-trimethylbenzene	2.375	2.528	-6.4	101	0.00	15.49
94	M	sec-butylbenzene	2.906	3.011	-3.6	100	0.00	15.61
95	M	1,3-dichlorobenzene	1.682	1.689	-0.4	101	0.00	15.72
96	M	p-isopropyltoluene	2.609	2.655	-1.8	99	0.00	15.78
97	M	1,4-dichlorobenzene	1.763	1.741	1.2	100	0.00	15.78
98	M	1,2-dichlorobenzene	1.690	1.717	-1.6	101	0.00	16.15
99	M	n-butylbenzene	2.173	2.282	-5.0	101	0.00	16.20
100	M	1,2-dibromo-3-chloropropa	0.109	0.107	1.8	99	0.00	16.63
101	M	1,2,4-trichlorobenzene	0.850	0.893	-5.1	98	0.00	18.03
----- True Calc. % Drift -----								
102	M	hexachlorobutadiene	50.000	54.306	-8.6	99	0.00	18.34
----- AvgRF CCRF % Dev -----								
103	M	naphthalene	1.922	1.907	0.8	95	0.00	18.32
104	M	1,2,3-trichlorobenzene	0.656	0.654	0.3	93	0.00	18.55

(0.0 %) 0 of 100 compounds'%D > 20

(#) = Out of Range
K33850.D K042409S.M

SPCC's out = 0 CCC's out = 0
Mon Apr 27 09:51:41 2009 MSK

Continuing Calibration Summary

Page 1 of 3

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: MSK1192-CC1192
Lab FileID: K33853.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\K33853.D
Acq On : 24 Apr 2009 5:51 pm
Sample : cc1192-100
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P

Vial: 12
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev (min)	R.T.
1	Tert butyl alcohol-d9	1.000	1.000	0.0	94	0.00	6.66
2	tertiary butyl alcohol	1.260	1.259	0.1	95	0.00	6.73
3 T	Ethanol	0.153	0.149	2.6	93	0.00	5.65
4 T	pentafluorobenzene	1.000	1.000	0.0	99	0.00	9.06
5 M	dichlorodifluoromethane	0.285	0.275	3.5	104	0.00	4.35
6 P	chloromethane	0.229	0.200	12.7	97	0.00	4.56
7 c	vinyl chloride	0.149	0.156	-4.7	105	0.00	4.84
----- True Calc. % Drift -----							
8 M	bromomethane	100.000	98.115	1.9	97	0.00	5.37
----- AvgRF CCRF % Dev -----							
9 M	chloroethane	0.215	0.220	-2.3	101	0.00	5.52
10 M	ethyl ether	0.364	0.365	-0.3	100	0.00	6.35
----- True Calc. % Drift -----							
11 M	acetonitrile	100.000	94.778	5.2	96	0.00	6.13
----- AvgRF CCRF % Dev -----							
12 M	trichlorofluoromethane	0.603	0.600	0.5	104	0.00	6.18
13 M	freon-113	0.316	0.326	-3.2	105	0.02	6.97
14 M	acrolein	0.071	0.076	-7.0	100	0.00	6.11
15 c	1,1-dichloroethene	0.382	0.353	7.6	102	0.00	6.74
16 M	acetone	0.123	0.107	13.0	85	0.00	6.25
17 M	Methyl Acetate	0.617	0.607	1.6	98	0.00	6.89
18 M	methylene chloride	0.455	0.430	5.5	102	0.00	6.88
19 M	methyl tert butyl ether	1.305	1.290	1.1	100	0.00	7.64
20 M	acrylonitrile	0.165	0.163	1.2	96	0.00	6.76
21 M	allyl chloride	0.592	0.581	1.9	101	0.00	6.97
22 M	trans-1,2-dichloroethene	0.517	0.498	3.7	102	0.00	7.56
23 M	iodomethane	0.744	0.725	2.6	101	0.00	6.80
24 M	carbon disulfide	1.187	1.156	2.6	101	0.00	7.16
----- True Calc. % Drift -----							
25 M	propionitrile	100.000	100.730	-0.7	97	0.00	7.85
----- AvgRF CCRF % Dev -----							
26 M	vinyl acetate	0.803	0.840	-4.6	98	0.00	7.90
27 M	chloroprene	0.643	0.675	-5.0	102	0.00	8.17
28 M	di-isopropyl ether	1.366	1.315	3.7	99	0.00	8.21
29 M	methacrylonitrile	0.252	0.253	-0.4	97	0.00	8.33

Continuing Calibration Summary

Page 2 of 3

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: MSK1192-CC1192
Lab FileID: K33853.D

		True	Calc.	% Drift			
30 M	2-butanone	100.000	86.261	13.7	88	0.00	8.22
		AvgRF	CCRF	% Dev			
31 M	Hexane	0.553	0.537	2.9	105	0.00	8.19
32 P	1,1-dichloroethane	0.783	0.770	1.7	101	0.00	7.80
33 M	tert-butyl ethyl ether	1.306	1.314	-0.6	99	0.00	8.60
34 M	isobutyl alcohol	0.040	0.039	2.5	99	0.00	8.63
35 M	2,2-dichloropropane	0.448	0.432	3.6	100	0.00	8.67
36 M	cis-1,2-dichloroethene	0.561	0.527	6.1	101	0.00	8.37
37 M	ethyl acetate	0.198	0.187	5.6	96	0.00	8.63
38 M	bromochloromethane	0.302	0.295	2.3	100	0.00	8.54
39 c	chloroform	0.844	0.817	3.2	100	0.00	8.58
40 S	dibromofluoromethane (s)	0.492	0.481	2.2	99	0.00	8.70
41 M	Tetrahydrofuran	0.126	0.122	3.2	96	0.00	8.92
42 M	1,1,1-trichloroethane	0.635	0.653	-2.8	102	0.00	9.35
43	n-Butyl Alcohol	0.342	0.331	3.2	105	0.00	9.34
44 I	1,4-difluorobenzene	1.000	1.000	0.0	98	0.00	9.93
45 M	Cyclohexane	0.355	0.346	2.5	106	0.00	9.62
46 M	carbon tetrachloride	0.437	0.457	-4.6	103	0.00	9.71
47 M	1,1-dichloropropene	0.444	0.448	-0.9	102	0.00	9.51
48 M	benzene	1.373	1.301	5.2	100	0.00	9.73
49 M	1,2-dichloroethane	0.424	0.419	1.2	101	0.00	9.23
50 M	tert-amyl methyl ether	0.916	0.933	-1.9	99	0.00	9.85
51 M	heptane	0.370	0.360	2.7	105	0.00	10.21
		True	Calc.	% Drift			
52	2-Nitropropane	100.000	104.291	-4.3	99	0.00	10.33
		AvgRF	CCRF	% Dev			
53 M	trichloroethene	0.377	0.370	1.9	100	0.00	10.35
54 c	1,2-dichloropropane	0.324	0.318	1.9	100	0.00	10.32
55 M	dibromomethane	0.208	0.209	-0.5	100	0.00	10.29
56 M	bromodichloromethane	0.439	0.444	-1.1	99	0.00	10.41
57 M	Methylcyclohexane	0.384	0.387	-0.8	107	0.00	10.88
		True	Calc.	% Drift			
58 M	2-chloroethyl vinyl ether	100.000	96.569	3.4	96	0.00	10.78
		AvgRF	CCRF	% Dev			
59 M	methyl methacrylate	0.211	0.232	-10.0	99	0.00	10.50
		True	Calc.	% Drift			
60 M	1,4-dioxane	500.000	473.396	5.3	90	0.01	10.54
		AvgRF	CCRF	% Dev			
61 M	cis-1,3-dichloropropene	0.494	0.508	-2.8	99	0.00	11.02
62 S	toluene-d8 (s)	1.178	1.179	-0.1	98	0.00	11.73
63 M	4-methyl-2-pentanone	0.268	0.272	-1.5	96	0.00	11.12
64 c	toluene	0.802	0.791	1.4	100	0.00	11.80
65 M	trans-1,3-dichloropropene	0.411	0.425	-3.4	99	0.00	11.44
66 M	1,1,2-trichloroethane	0.246	0.249	-1.2	100	0.00	11.62
67 M	ethyl methacrylate	0.331	0.365	-10.3	99	0.00	11.82
68 I	chlorobenzene-d5	1.000	1.000	0.0	99	0.00	13.19
69 M	tetrachloroethene	1.015	0.946	6.8	102	0.00	12.55
70 M	1,3-dichloropropane	1.205	1.108	8.0	99	0.00	11.85
71 M	dibromochloromethane	0.888	0.892	-0.5	100	0.00	12.15

Continuing Calibration Summary

Page 3 of 3

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: MSK1192-CC1192
Lab FileID: K33853.D

72	M	1,2-dibromoethane	0.816	0.778	4.7	99	0.00	12.40
73	M	2-hexanone	0.485	0.445	8.2	90	0.00	11.98
74	P	chlorobenzene	2.385	2.191	8.1	100	0.00	13.23
75	M	1,1,1,2-tetrachloroethane	0.904	0.869	3.9	102	0.00	13.14
76	c	ethylbenzene	3.586	3.398	5.2	100	0.00	13.40
77	M	m,p-xylene	1.445	1.382	4.4	101	0.00	13.59
78	M	o-xylene	1.419	1.349	4.9	101	0.00	14.00
79	M	styrene	2.146	2.196	-2.3	100	0.00	13.93
80	P	bromoform	0.577	0.591	-2.4	99	0.00	13.75
81	M	trans-1,4-dichloro-2-bute	0.221	0.218	1.4	97	0.00	14.15
82	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	100	0.00	15.76
83	M	isopropylbenzene	2.446	2.459	-0.5	101	0.00	14.36
84	S	bromofluorobenzene (s)	0.871	0.843	3.2	99	0.00	14.42
85	M	bromobenzene	0.900	0.890	1.1	101	0.00	14.65
86	P	1,1,2,2-tetrachloroethane	0.745	0.724	2.8	99	0.00	14.00
87	M	1,2,3-trichloropropane	0.823	0.823	0.0	98	0.00	14.15
88	M	n-propylbenzene	3.066	3.052	0.5	101	0.00	14.81
89	M	2-chlorotoluene	2.025	1.969	2.8	100	0.00	14.93
90	M	4-chlorotoluene	2.003	2.007	-0.2	101	0.00	15.00
91	M	1,3,5-trimethylbenzene	2.318	2.326	-0.3	101	0.00	15.08
92	M	tert-butylbenzene	1.235	1.218	1.4	102	0.00	15.39
93	M	1,2,4-trimethylbenzene	2.375	2.399	-1.0	100	0.00	15.49
94	M	sec-butylbenzene	2.906	2.817	3.1	102	0.00	15.61
95	M	1,3-dichlorobenzene	1.682	1.630	3.1	100	0.00	15.72
96	M	p-isopropyltoluene	2.609	2.516	3.6	101	0.00	15.78
97	M	1,4-dichlorobenzene	1.763	1.668	5.4	100	0.00	15.78
98	M	1,2-dichlorobenzene	1.690	1.658	1.9	100	0.00	16.15
99	M	n-butylbenzene	2.173	2.187	-0.6	101	0.00	16.20
100	M	1,2-dibromo-3-chloropropa	0.109	0.108	0.9	95	0.00	16.63
101	M	1,2,4-trichlorobenzene	0.850	0.886	-4.2	97	0.00	18.03
----- True Calc. % Drift -----								
102	M	hexachlorobutadiene	100.000	100.478	-0.5	98	0.00	18.34
----- AvgRF CCRF % Dev -----								
103	M	naphthalene	1.922	1.861	3.2	90	0.00	18.32
104	M	1,2,3-trichlorobenzene	0.656	0.623	5.0	88	0.00	18.55

(0.0 %) 0 of 100 compounds'%D > 20

(#) = Out of Range
K33849.D K042409S.M

SPCC's out = 0 CCC's out = 0
Mon Apr 27 10:04:36 2009 MSK

Continuing Calibration Summary

Page 1 of 3

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: MSK1193-CC1192
Lab FileID: K33886.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\K33886.D
Acq On : 27 Apr 2009 9:54 am
Sample : cc1192-100
Misc : ms18104,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P

Vial: 1
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev (min)	R.T.
1	Tert butyl alcohol-d9	1.000	1.000	0.0	75	0.00	6.67
2	tertiary butyl alcohol	1.260	1.235	2.0	74	0.00	6.73
3 T	Ethanol	0.153	0.150	2.0	74	0.00	5.65
4 I	pentafluorobenzene	1.000	1.000	0.0	96	0.00	9.06
5 M	dichlorodifluoromethane	0.285	0.239	16.1	88	0.00	4.35
6 P	chloromethane	0.229	0.211	7.9	99	0.00	4.57
7 c	vinyl chloride	0.149	0.169	-13.4	110	0.00	4.84
----- True Calc. % Drift -----							
8 M	bromomethane	100.000	97.319	2.7	93	0.00	5.37
----- AvgRF CCRF % Dev -----							
9 M	chloroethane	0.215	0.220	-2.3	98	0.01	5.52
10 M	ethyl ether	0.364	0.347	4.7	92	0.00	6.36
----- True Calc. % Drift -----							
11 M	acetonitrile	100.000	95.132	4.9	93	0.00	6.13
----- AvgRF CCRF % Dev -----							
12 M	trichlorofluoromethane	0.603	0.597	1.0	100	0.00	6.18
13 M	freon-113	0.316	0.330	-4.4	102	0.02	6.97
14 M	acrolein	0.071	0.044	38.0#	56	0.00	6.11
15 c	1,1-dichloroethene	0.382	0.378	1.0	106	0.01	6.76
16 M	acetone	0.123	0.134	-8.9	102	0.00	6.25
17 M	Methyl Acetate	0.617	0.547	11.3	86	0.00	6.89
18 M	methylene chloride	0.455	0.436	4.2	100	0.00	6.88
19 M	methyl tert butyl ether	1.305	1.218	6.7	92	0.00	7.64
20 M	acrylonitrile	0.165	0.149	9.7	85	0.00	6.77
21 M	allyl chloride	0.592	0.565	4.6	95	0.01	6.98
22 M	trans-1,2-dichloroethene	0.517	0.481	7.0	95	0.00	7.56
23 M	iodomethane	0.744	0.741	0.4	99	0.00	6.80
24 M	carbon disulfide	1.187	1.163	2.0	98	0.00	7.17
----- True Calc. % Drift -----							
25 M	propionitrile	100.000	86.410	13.6	80	0.00	7.85
----- AvgRF CCRF % Dev -----							
26 M	vinyl acetate	0.803	0.770	4.1	87	0.00	7.91
27 M	chloroprene	0.643	0.644	-0.2	94	0.00	8.17
28 M	di-isopropyl ether	1.366	1.263	7.5	92	0.00	8.21
29 M	methacrylonitrile	0.252	0.235	6.7	87	0.00	8.33

Continuing Calibration Summary

Page 2 of 3

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: MSK1193-CC1192
Lab FileID: K33886.D

		True	Calc.	% Drift			
30 M	2-butanone	100.000	103.204	-3.2	100	0.00	8.23
		AvgRF	CCRF	% Dev			
31 M	Hexane	0.553	0.498	9.9	94	0.00	8.19
32 P	1,1-dichloroethane	0.783	0.746	4.7	94	0.00	7.81
33 M	tert-butyl ethyl ether	1.306	1.269	2.8	93	0.00	8.60
34 M	isobutyl alcohol	0.040	0.033	17.5	83	0.00	8.63
35 M	2,2-dichloropropane	0.448	0.433	3.3	97	0.00	8.68
36 M	cis-1,2-dichloroethene	0.561	0.513	8.6	95	0.00	8.38
37 M	ethyl acetate	0.198	0.174	12.1	86	0.01	8.63
38 M	bromochloromethane	0.302	0.286	5.3	94	0.00	8.54
39 c	chloroform	0.844	0.786	6.9	93	0.00	8.58
40 S	dibromofluoromethane (s)	0.492	0.474	3.7	94	0.00	8.70
41 M	Tetrahydrofuran	0.126	0.106	15.9	81	0.00	8.92
42 M	1,1,1-trichloroethane	0.635	0.639	-0.6	97	0.01	9.35
43	n-Butyl Alcohol	0.342	0.337	1.5	103	0.00	9.34
44 I	1,4-difluorobenzene	1.000	1.000	0.0	95	0.00	9.93
45 M	Cyclohexane	0.355	0.332	6.5	99	0.00	9.62
46 M	carbon tetrachloride	0.437	0.440	-0.7	96	0.00	9.71
47 M	1,1-dichloropropene	0.444	0.433	2.5	95	0.00	9.51
48 M	benzene	1.373	1.250	9.0	93	0.00	9.74
49 M	1,2-dichloroethane	0.424	0.405	4.5	94	0.00	9.23
50 M	tert-amyl methyl ether	0.916	0.888	3.1	91	0.00	9.85
51 M	heptane	0.370	0.348	5.9	98	0.00	10.21
		True	Calc.	% Drift			
52	2-Nitropropane	100.000	102.091	-2.1	94	0.00	10.33
		AvgRF	CCRF	% Dev			
53 M	trichloroethene	0.377	0.365	3.2	96	0.00	10.36
54 c	1,2-dichloropropane	0.324	0.309	4.6	94	0.00	10.32
55 M	dibromomethane	0.208	0.202	2.9	94	0.00	10.30
56 M	bromodichloromethane	0.439	0.429	2.3	93	0.00	10.41
57 M	Methylcyclohexane	0.384	0.376	2.1	101	0.00	10.88
		True	Calc.	% Drift			
58 M	2-chloroethyl vinyl ether	100.000	87.288	12.7	84	0.00	10.78
		AvgRF	CCRF	% Dev			
59 M	methyl methacrylate	0.211	0.210	0.5	87	0.00	10.50
		True	Calc.	% Drift			
60 M	1,4-dioxane	500.000	411.802	17.6	76	0.01	10.54
		AvgRF	CCRF	% Dev			
61 M	cis-1,3-dichloropropene	0.494	0.499	-1.0	94	0.00	11.03
62 S	toluene-d8 (s)	1.178	1.175	0.3	94	0.00	11.73
63 M	4-methyl-2-pentanone	0.268	0.256	4.5	87	0.00	11.12
64 c	toluene	0.802	0.780	2.7	95	0.00	11.81
65 M	trans-1,3-dichloropropene	0.411	0.421	-2.4	95	0.00	11.45
66 M	1,1,2-trichloroethane	0.246	0.237	3.7	92	0.00	11.62
67 M	ethyl methacrylate	0.331	0.339	-2.4	89	0.00	11.82
68 I	chlorobenzene-d5	1.000	1.000	0.0	98	0.00	13.19
69 M	tetrachloroethene	1.015	0.905	10.8	97	0.00	12.55
70 M	1,3-dichloropropane	1.205	1.040	13.7	92	0.00	11.85
71 M	dibromochloromethane	0.888	0.848	4.5	95	0.00	12.15

5.7
5

Continuing Calibration Summary

Page 3 of 3

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: MSK1193-CC1192
Lab FileID: K33886.D

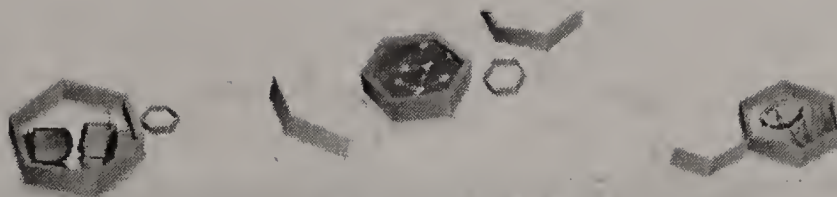
72	M	1,2-dibromoethane	0.816	0.745	8.7	94	0.00	12.40
73	M	2-hexanone	0.485	0.596	-22.9#	119	0.00	11.98
74	P	chlorobenzene	2.385	2.163	9.3	98	0.00	13.23
75	M	1,1,1,2-tetrachloroethane	0.904	0.825	8.7	96	0.00	13.15
76	c	ethylbenzene	3.586	3.289	8.3	96	0.00	13.40
77	M	m,p-xylene	1.445	1.347	6.8	98	0.00	13.59
78	M	o-xylene	1.419	1.305	8.0	97	0.00	14.00
79	M	styrene	2.146	2.177	-1.4	98	0.00	13.93
80	P	bromoform	0.577	0.561	2.8	93	0.00	13.75
81	M	trans-1,4-dichloro-2-bute	0.221	0.208	5.9	92	0.00	14.15
82	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	102	0.00	15.76
83	M	isopropylbenzene	2.446	2.346	4.1	100	0.00	14.36
84	S	bromofluorobenzene (s)	0.871	0.822	5.6	99	0.00	14.42
85	M	bromobenzene	0.900	0.842	6.4	98	0.00	14.65
86	P	1,1,2,2-tetrachloroethane	0.745	0.653	12.3	92	0.00	14.00
87	M	1,2,3-trichloropropane	0.823	0.755	8.3	93	0.00	14.15
88	M	n-propylbenzene	3.066	2.898	5.5	99	0.00	14.81
89	M	2-chlorotoluene	2.025	1.857	8.3	97	0.00	14.93
90	M	4-chlorotoluene	2.003	1.904	4.9	99	0.00	15.00
91	M	1,3,5-trimethylbenzene	2.318	2.227	3.9	100	0.00	15.08
92	M	tert-butylbenzene	1.235	1.150	6.9	99	0.00	15.39
93	M	1,2,4-trimethylbenzene	2.375	2.320	2.3	99	0.00	15.49
94	M	sec-butylbenzene	2.906	2.718	6.5	101	0.00	15.61
95	M	1,3-dichlorobenzene	1.682	1.575	6.4	100	0.00	15.72
96	M	p-isopropyltoluene	2.609	2.424	7.1	100	0.00	15.78
97	M	1,4-dichlorobenzene	1.763	1.586	10.0	98	0.00	15.78
98	M	1,2-dichlorobenzene	1.690	1.581	6.4	98	0.00	16.15
99	M	n-butylbenzene	2.173	2.082	4.2	99	0.00	16.20
100	M	1,2-dibromo-3-chloropropa	0.109	0.093	14.7	84	0.00	16.63
101	M	1,2,4-trichlorobenzene	0.850	0.839	1.3	94	0.00	18.03

		True	Calc.	% Drift			
102	M	hexachlorobutadiene	100.000	97.953	2.0	98	0.00 18.34
		AvgRF	CCRF	% Dev			
103	M	naphthalene	1.922	1.671	13.1	83	0.00 18.32
104	M	1,2,3-trichlorobenzene	0.656	0.543	17.2	79	0.00 18.55

(2.0 %) 2 of 100 compounds'%D > 20

(#) = Out of Range
K33849.D K042409S.M

SPCC's out = 0 CCC's out = 0
Mon Apr 27 12:33:01 2009 MSK



IT'S ALL IN THE CHEMISTRY

Section 6

GC/MS Volatiles

Raw Data

9

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33859.D
Acq On : 24 Apr 2009 8:28 pm
Sample : m82272-1
Misc : ms18104,msk1192,17.560,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:39:32 2009

Vial: 18
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Tert butyl alcohol-d9	6.67	65	60859	500.00	ug/kg	0.01
4) pentafluorobenzene	9.06	168	216156	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	289934	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	110015	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	130057	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	103618	48.74	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	97.48%
62) toluene-d8 (s)	11.73	98	352970	51.65	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	103.30%
84) bromofluorobenzene (s)	14.42	95	112649	49.70	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	99.40%

Target Compounds

						Qvalue
36) cis-1,2-dichloroethene	8.37	96	3934	1.62	ug/kg	91
42) 1,1,1-trichloroethane	9.34	97	8727	3.18	ug/kg	94
53) trichloroethene	10.35	95	9066	4.15	ug/kg	94
69) tetrachloroethene	12.55	166	1060263	474.79	ug/kg	98
91) 1,3,5-trimethylbenzene	15.08	105	2296	0.38	ug/kg	92
93) 1,2,4-trimethylbenzene	15.49	105	6392	1.03	ug/kg	94
94) sec-butylbenzene	15.61	105	2353	0.31	ug/kg	90
96) p-isopropyltoluene	15.78	119	2217	0.33	ug/kg	93
99) n-butylbenzene	16.20	91	4251	0.75	ug/kg#	30

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33859.D K042409S.M Mon Apr 27 11:42:10 2009 MSK

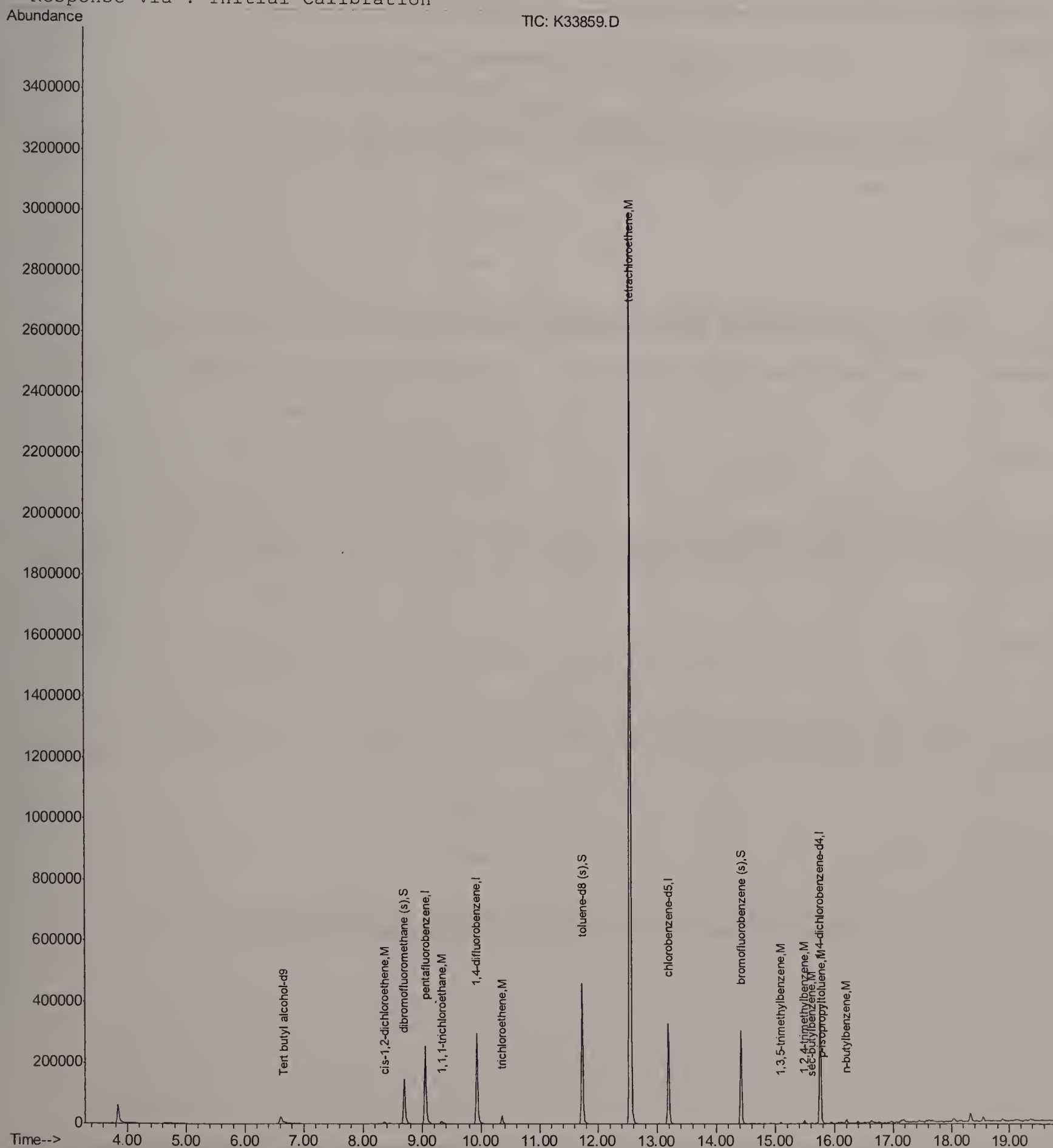
Quantitation Report (QT Reviewed)

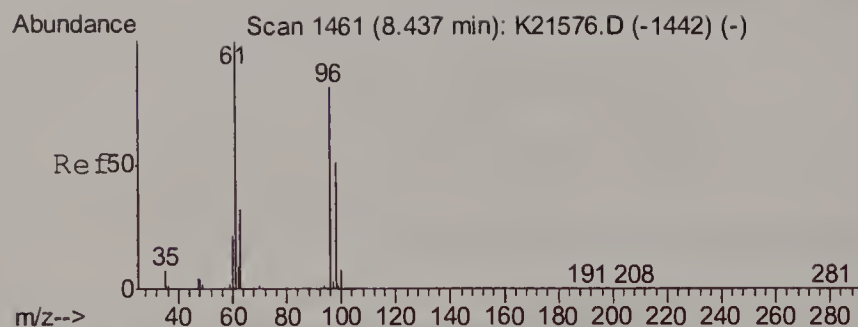
Data File : C:\MSDCHEM\1\DATA\K33859.D
Acq On : 24 Apr 2009 8:28 pm
Sample : m82272-1
Misc : ms18104,msk1192,17.560,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:41 2009

Vial: 18
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

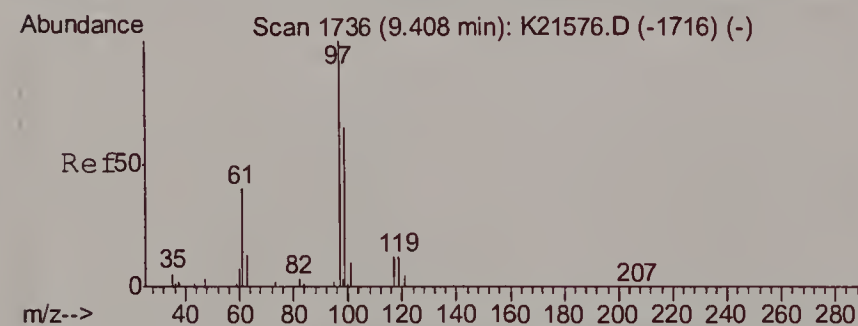
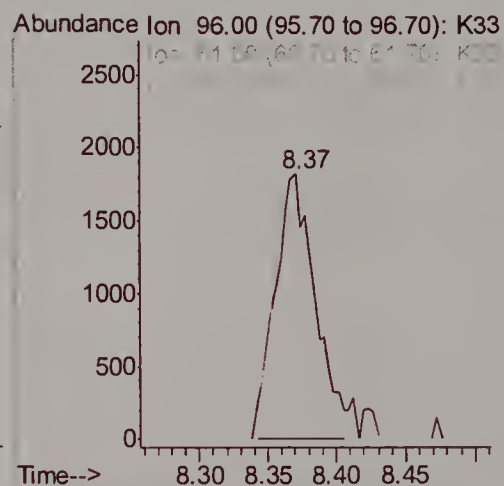
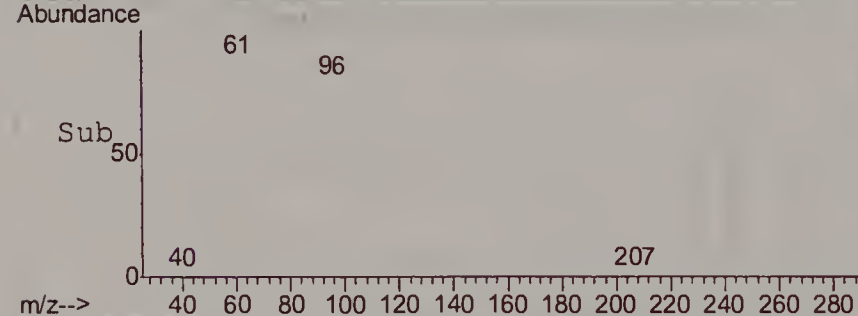
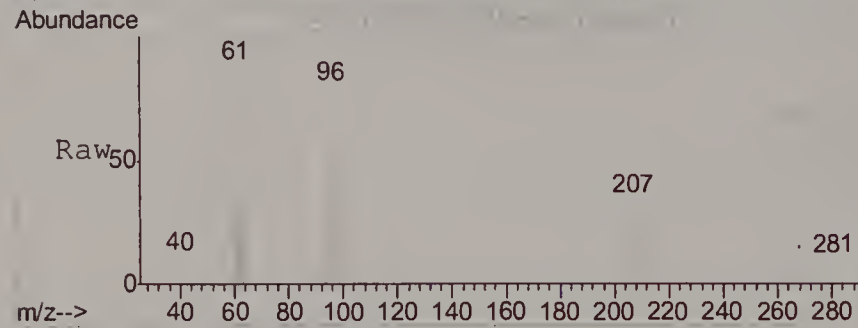
Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration





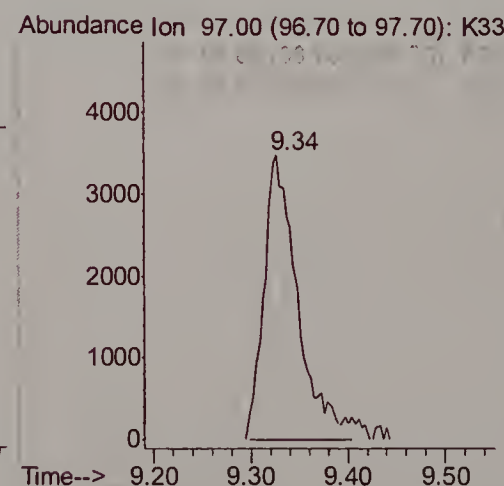
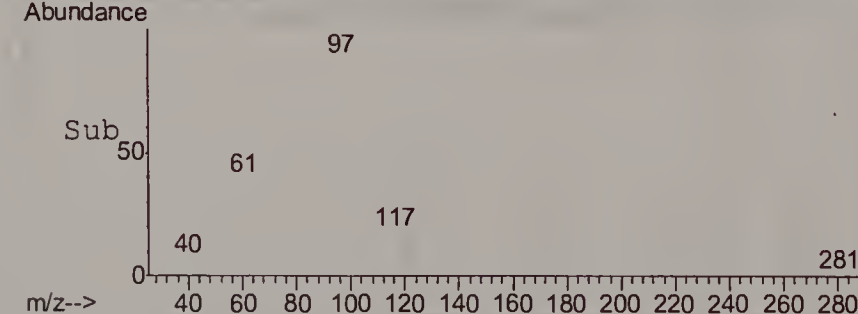
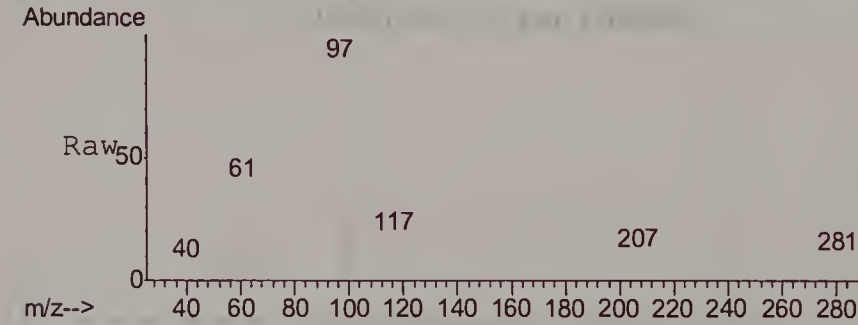
#36
cis-1,2-dichloroethene
Concen: 1.62 ug/kg
RT: 8.37 min Scan# 1443
Delta R.T. 0.00 min
Lab File: K33859.D
Acq: 24 Apr 2009 8:28 pm

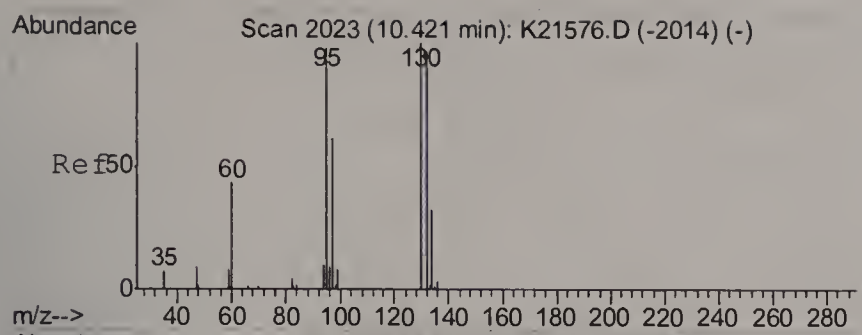
Tgt Ion:	96	Resp:	3934
Ion Ratio	Lower	Upper	
96	100		
61	124.4	83.7	143.7
98	72.1	36.9	96.9



#42
1,1,1-trichloroethane
Concen: 3.18 ug/kg
RT: 9.34 min Scan# 1716
Delta R.T. -0.00 min
Lab File: K33859.D
Acq: 24 Apr 2009 8:28 pm

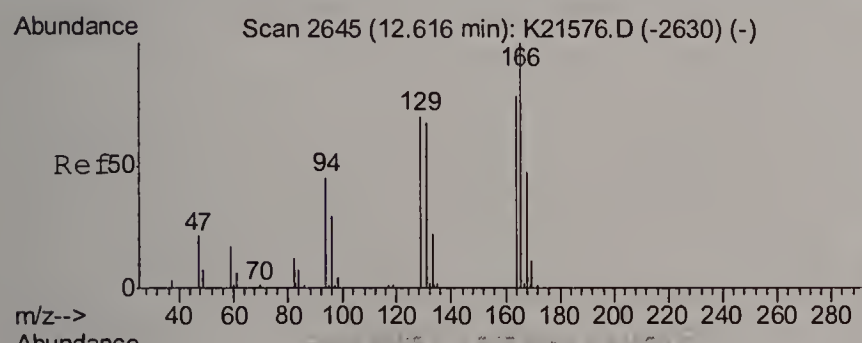
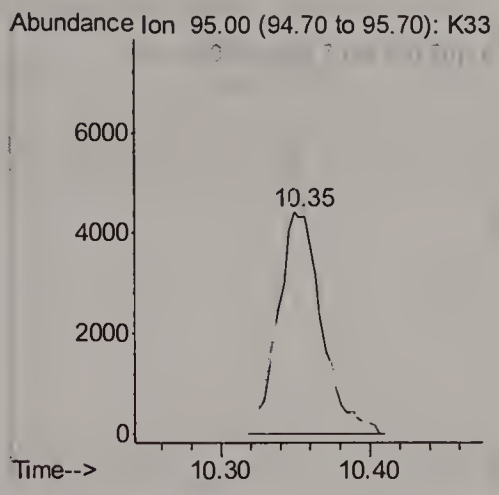
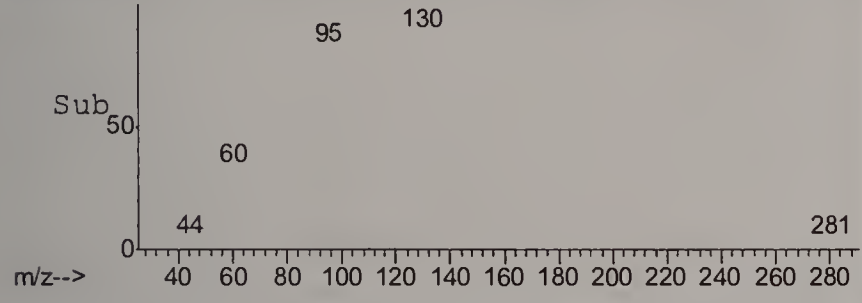
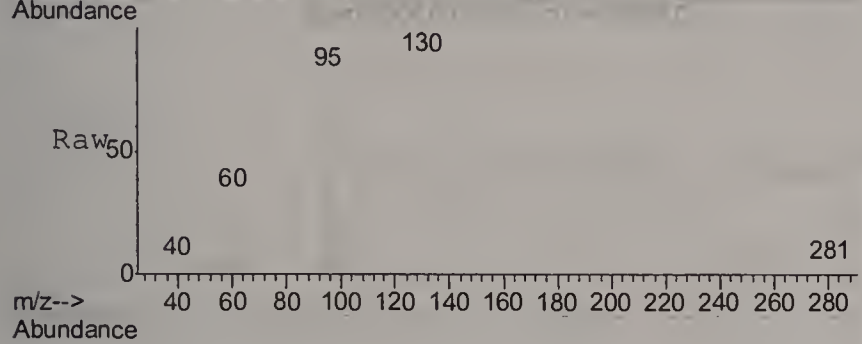
Tgt Ion:	97	Resp:	8727
Ion Ratio	Lower	Upper	
97	100		
99	63.6	38.4	98.4
61	40.5	7.6	67.6





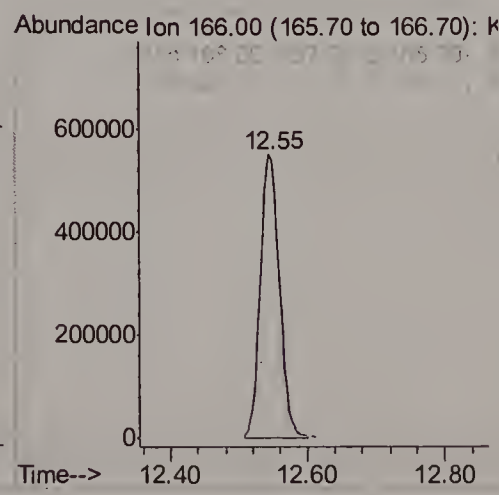
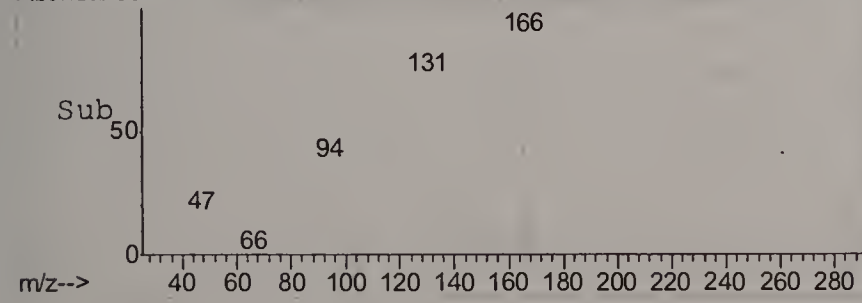
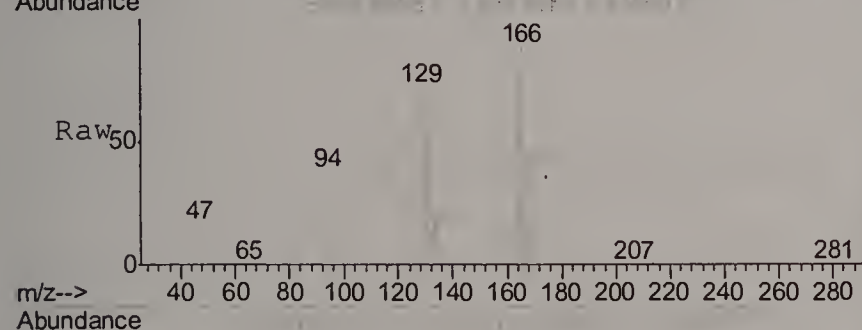
#53
trichloroethene
Concen: 4.15 ug/kg
RT: 10.35 min Scan# 2004
Delta R.T. 0.00 min
Lab File: K33859.D
Acq: 24 Apr 2009 8:28 pm

Tgt Ion:	95	Resp:	9066
Ion Ratio	Lower	Upper	
95	100		
130	122.6	84.7	144.7
132	116.6	81.6	141.6

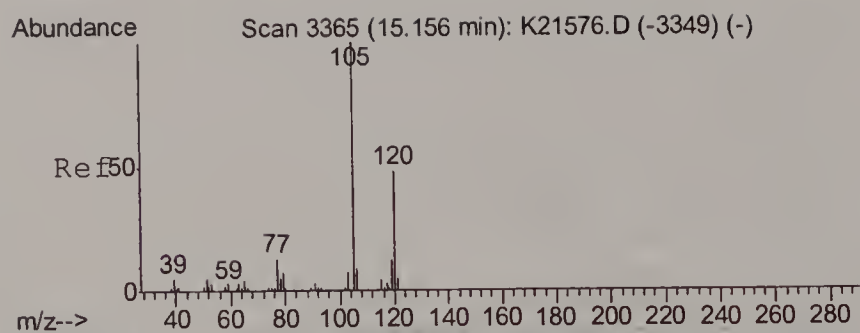


#69
tetrachloroethene
Concen: 474.79 ug/kg
RT: 12.55 min Scan# 2625
Delta R.T. 0.00 min
Lab File: K33859.D
Acq: 24 Apr 2009 8:28 pm

Tgt Ion:	166	Resp:	1060263
Ion Ratio	Lower	Upper	
166	100		
168	48.1	18.9	78.9
129	72.3	44.2	104.2

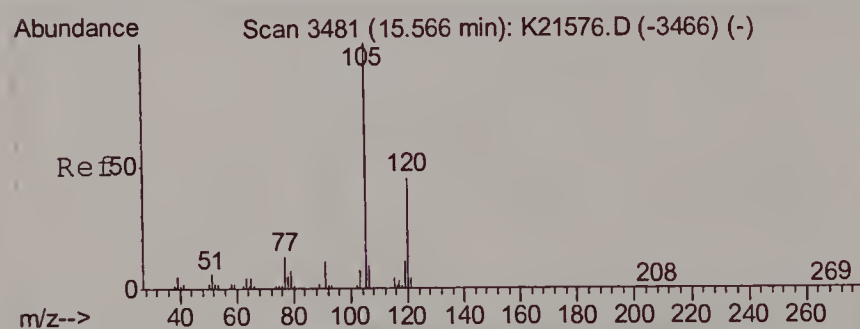
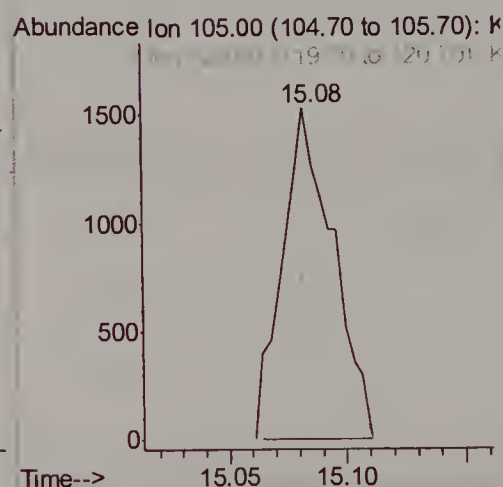


6.1.1
6



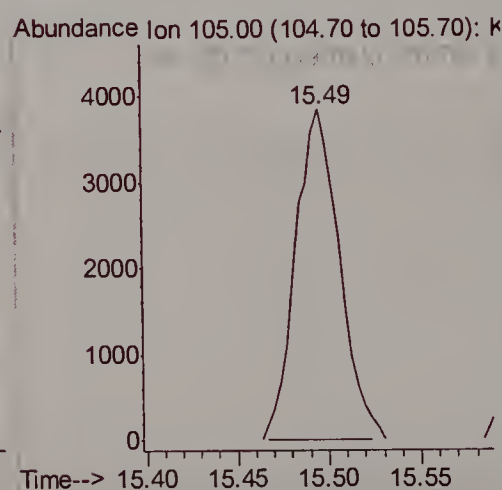
#91
1,3,5-trimethylbenzene
Concen: 0.38 ug/kg
RT: 15.08 min Scan# 3345
Delta R.T. 0.00 min
Lab File: K33859.D
Acq: 24 Apr 2009 8:28 pm

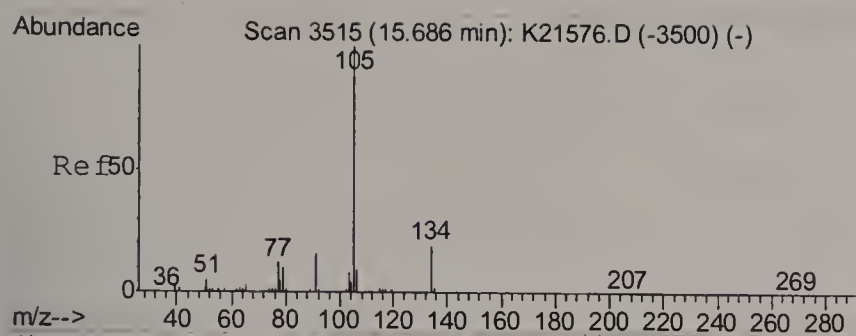
Tgt Ion	Ratio	Lower	Upper
105	100		
120	60.5	25.0	85.0



#93
1,2,4-trimethylbenzene
Concen: 1.03 ug/kg
RT: 15.49 min Scan# 3461
Delta R.T. 0.00 min
Lab File: K33859.D
Acq: 24 Apr 2009 8:28 pm

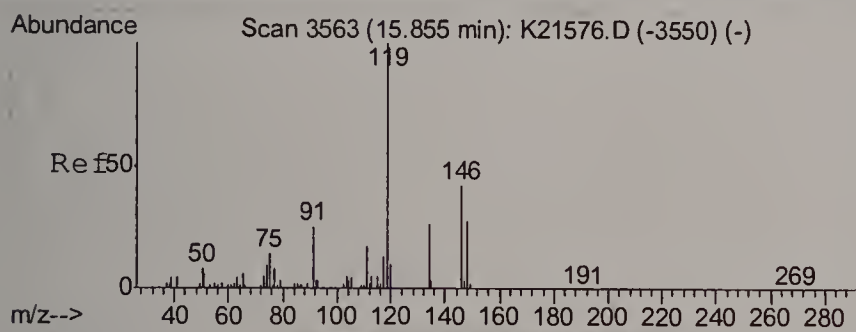
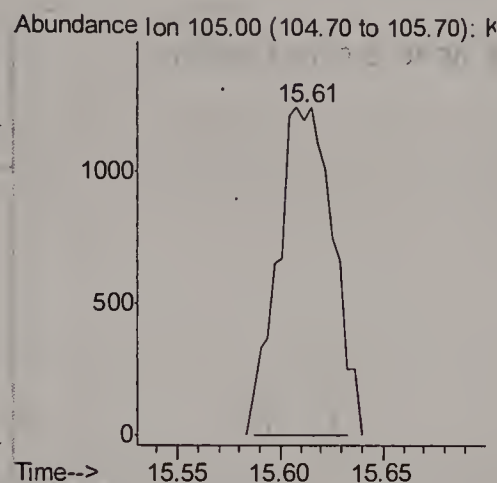
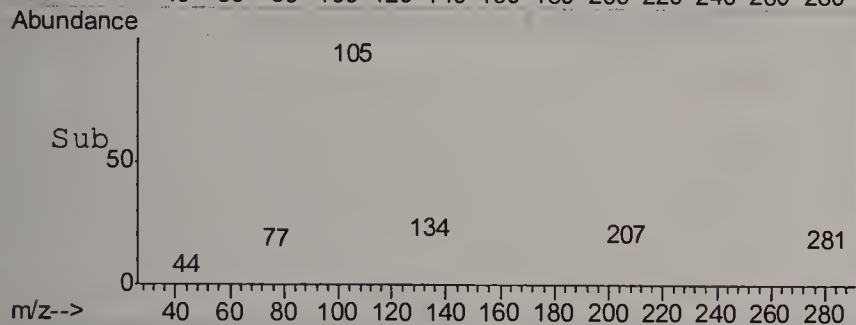
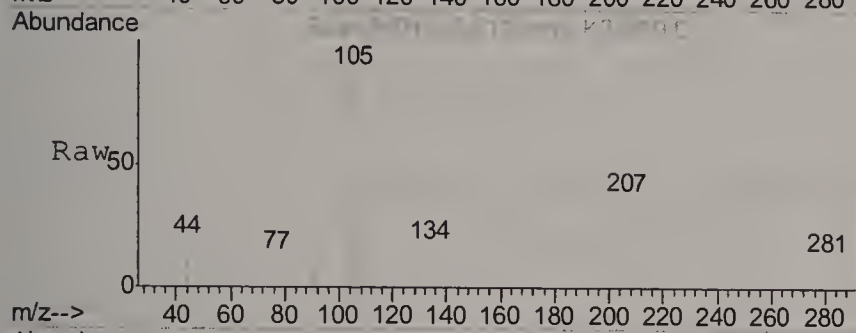
Tgt Ion	Ratio	Lower	Upper
105	100		
120	47.4	21.9	81.9





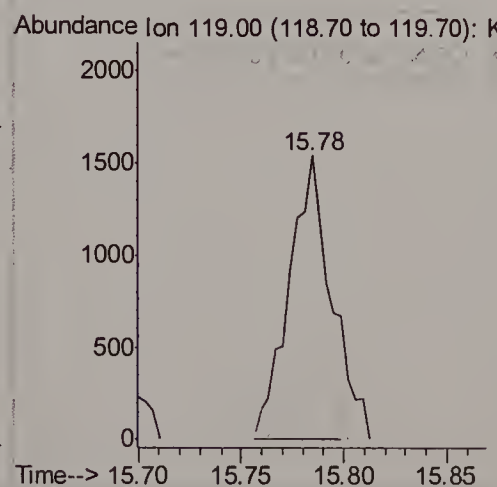
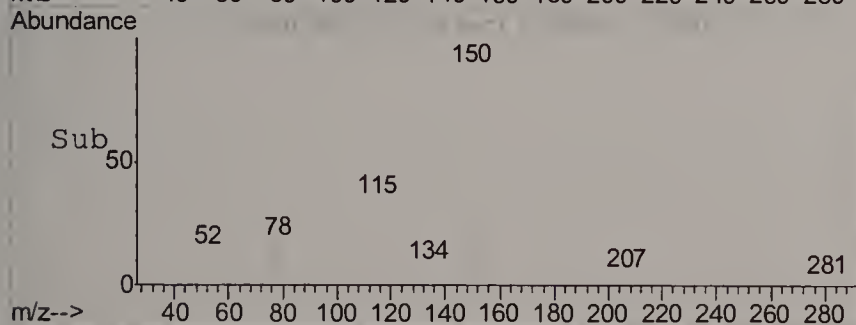
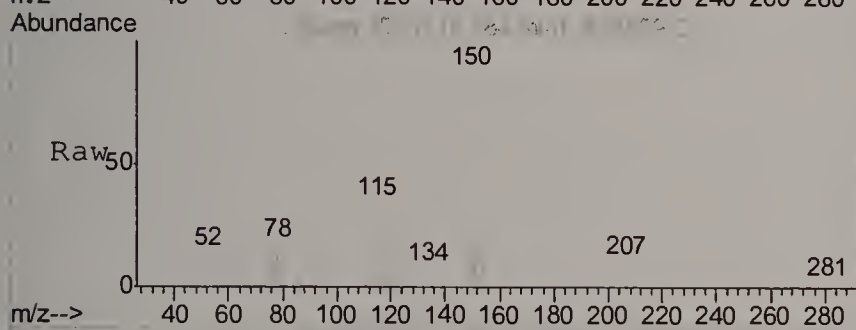
#94
sec-butylbenzene
Concen: 0.31 ug/kg
RT: 15.61 min Scan# 3494
Delta R.T. 0.00 min
Lab File: K33859.D
Acq: 24 Apr 2009 8:28 pm

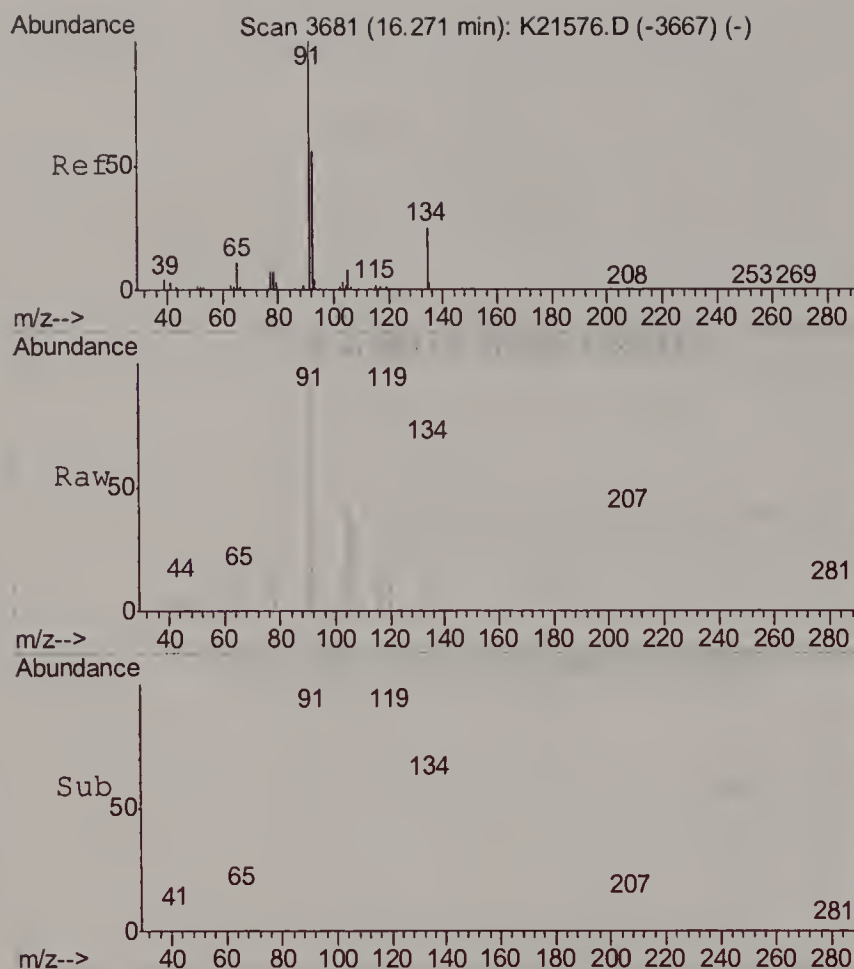
Tgt Ion:105	Resp:	2353
Ion Ratio	Lower	Upper
105	100	
134	16.8	0.0 51.6



#96
p-isopropyltoluene
Concen: 0.33 ug/kg
RT: 15.78 min Scan# 3543
Delta R.T. 0.00 min
Lab File: K33859.D
Acq: 24 Apr 2009 8:28 pm

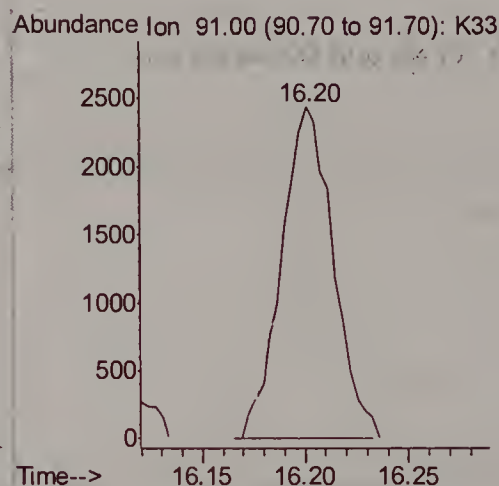
Tgt Ion:119	Resp:	2217
Ion Ratio	Lower	Upper
119	100	
134	30.7	0.0 57.0
91	16.7	0.0 50.2





#99
 n-butylbenzene
 Concen: 0.75 ug/kg
 RT: 16.20 min Scan# 3661
 Delta R.T. 0.00 min
 Lab File: K33859.D
 Acq: 24 Apr 2009 8:28 pm

Tgt Ion	Ratio	Lower	Upper
91	100		
134	69.1	0.7	60.7#



Quantitation Report

(QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33892.DVial: 7

Acq On : 27 Apr 2009 12:30 pmOperator: RobertT

Sample : m82272-1Inst : gcms k

Misc : ms18104,msk1193,17.560,,25,10,1Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Apr 27 12:54:48 2009Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)

Title : SW-846 Method 8260

Last Update : Mon Apr 27 09:11:43 2009

Response via : Initial Calibration

DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.68	65	60468	500.00	ug/kg	0.02
4) pentafluorobenzene	9.06	168	213530	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	283684	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.20	82	107130	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	130213	50.00	ug/kg	0.00
System Monitoring Compounds						
40) dibromofluoromethane (s)	8.70	113	101158	48.17	ug/kg	0.00
Spiked Amount 50.000	Range 85 - 129		Recovery =	96.34%		
62) toluene-d8 (s)	11.73	98	341435	51.06	ug/kg	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery =	102.12%		
84) bromofluorobenzene (s)	14.42	95	110707	48.79	ug/kg	0.00
Spiked Amount 50.000	Range 80 - 119		Recovery =	97.58%		
Target Compounds						
36) cis-1,2-dichloroethene	8.38	96	1279	0.53	ug/kg	79
42) 1,1,1-trichloroethane	9.34	97	2094	0.77	ug/kg	100
53) trichloroethene	10.36	95	3119	1.46	ug/kg	76
69) tetrachloroethene	12.55	166	275972	126.91	ug/kg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

K33892.D K042409S.M Mon Apr 27 12:55:51 2009 MSK

6.1.2

6

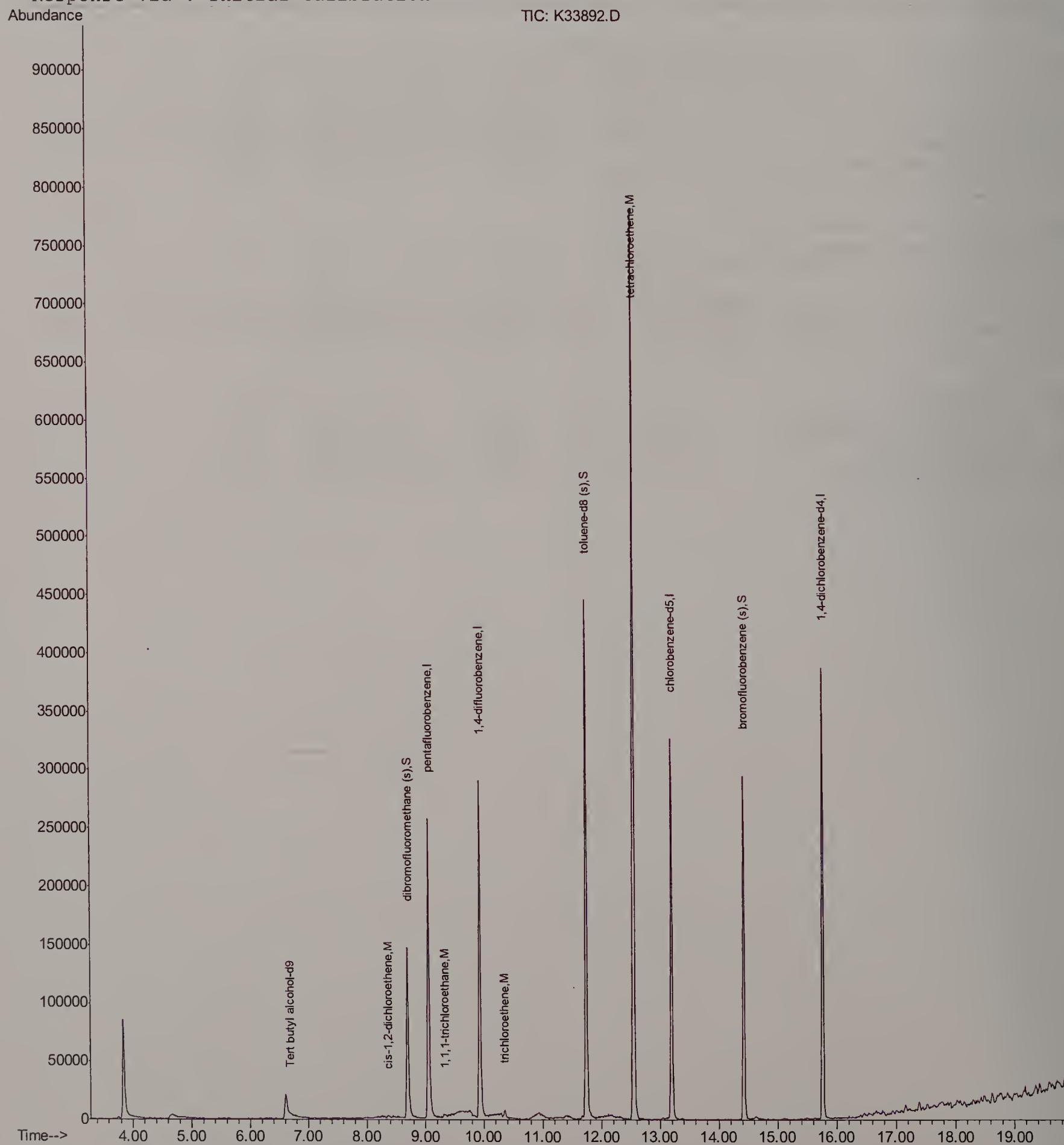
Quantitation Report (QT Reviewed)

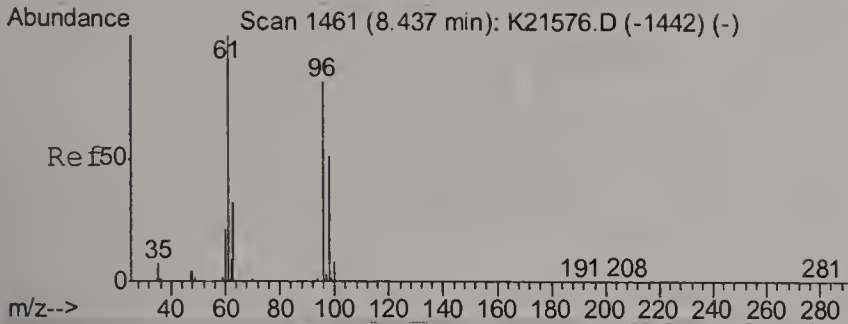
Data File : C:\MSDCHEM\1\DATA\K33892.D
Acq On : 27 Apr 2009 12:30 pm
Sample : m82272-1
Misc : ms18104,msk1193,17.560,,25,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:55 2009

Vial: 7
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

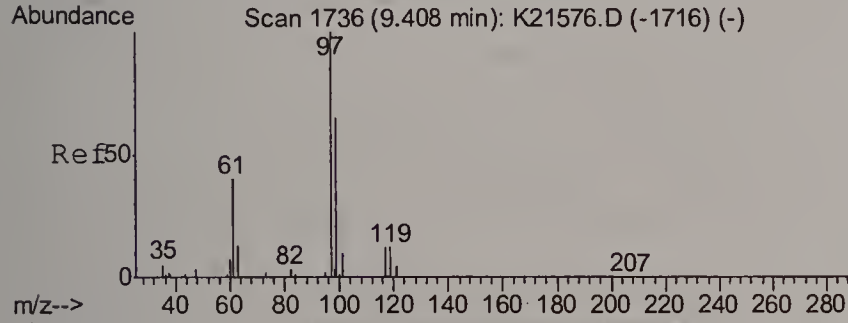
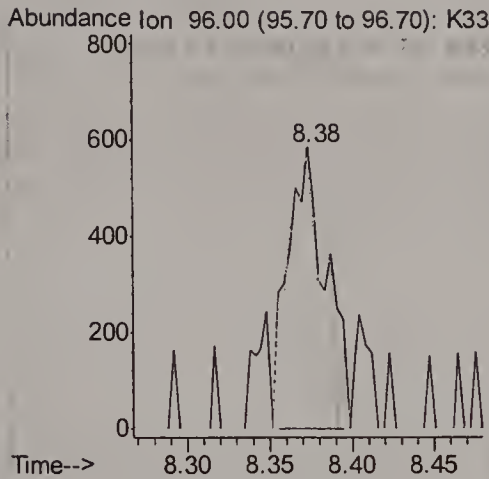
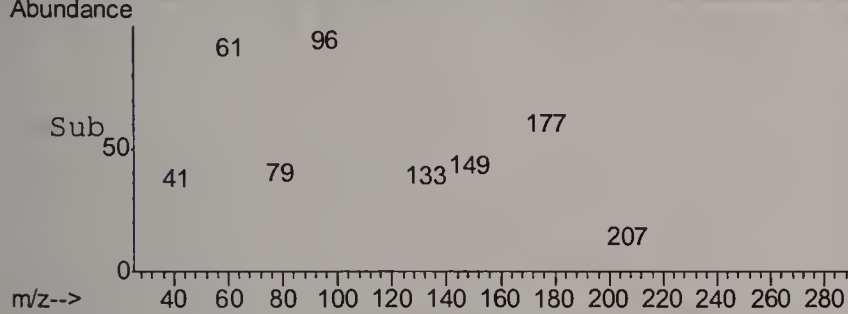
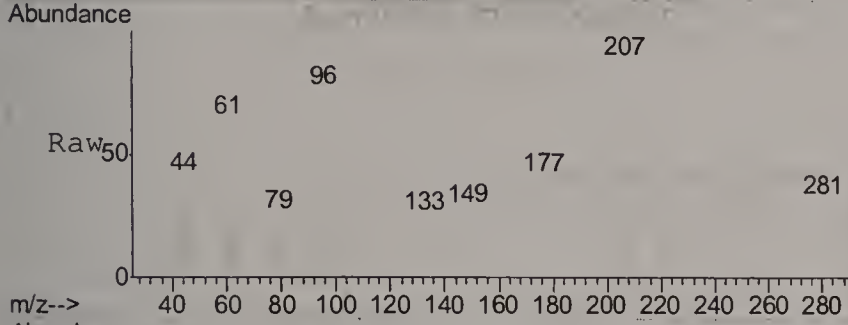
Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration





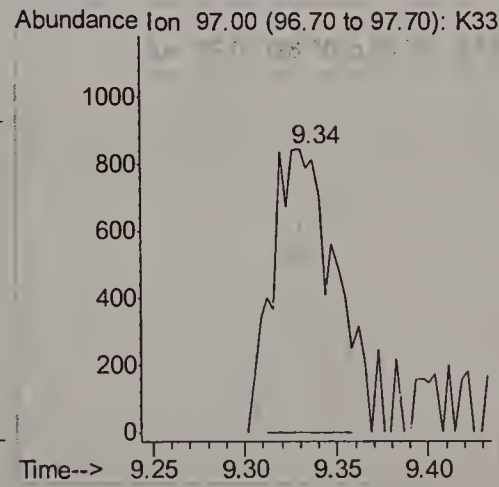
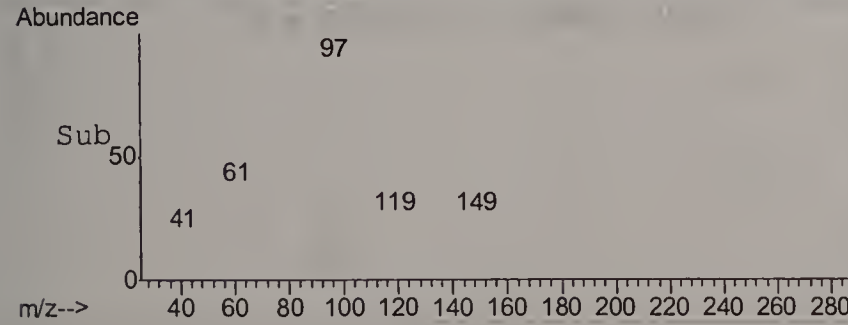
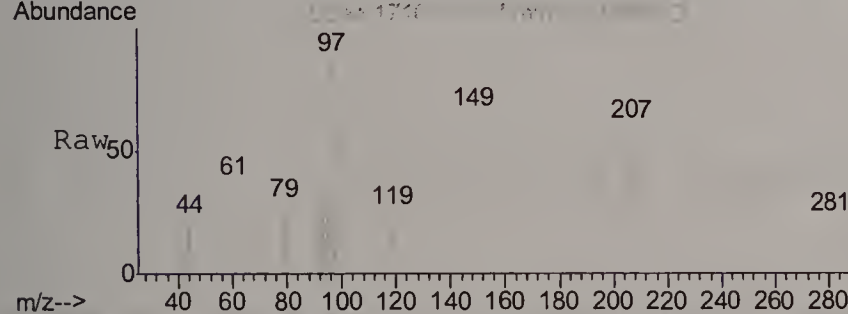
#36
cis-1,2-dichloroethene
Concen: 0.53 ug/kg
RT: 8.38 min Scan# 1444
Delta R.T. 0.00 min
Lab File: K33892.D
Acq: 27 Apr 2009 12:30 pm

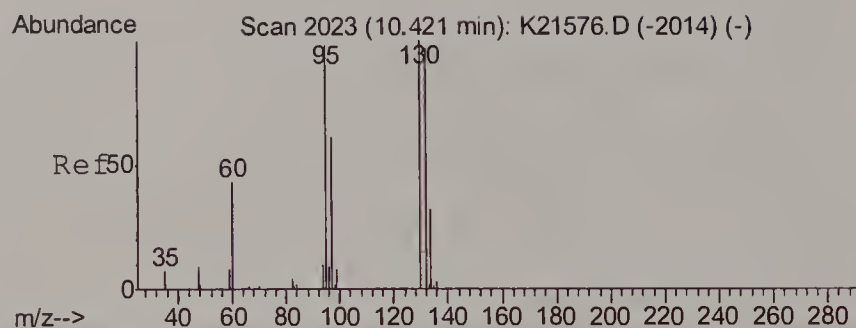
Tgt Ion:	96	Resp:	1279
Ion	Ratio	Lower	Upper
96	100		
61	85.1	83.7	143.7
98	56.6	36.9	96.9



#42
1,1,1-trichloroethane
Concen: 0.77 ug/kg
RT: 9.34 min Scan# 1716
Delta R.T. -0.01 min
Lab File: K33892.D
Acq: 27 Apr 2009 12:30 pm

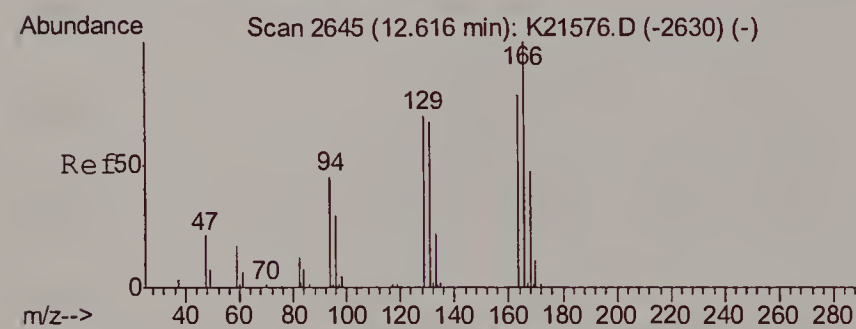
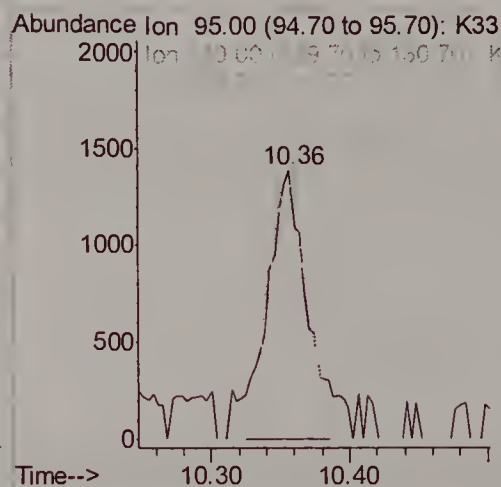
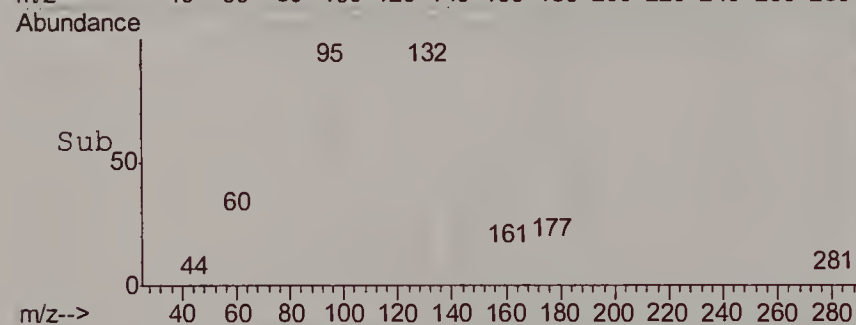
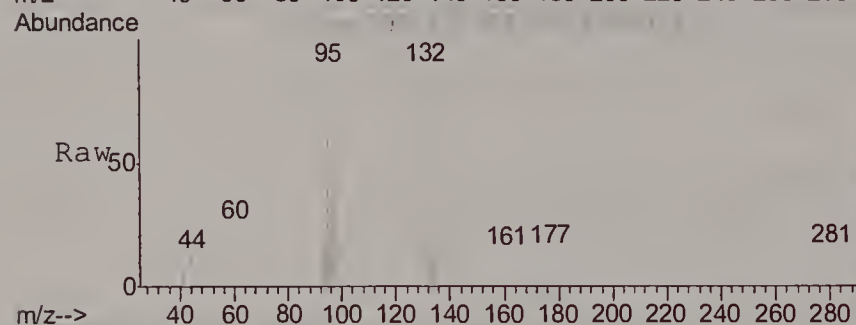
Tgt Ion:	97	Resp:	2094
Ion	Ratio	Lower	Upper
97	100		
99	68.2	38.4	98.4
61	37.6	7.6	67.6





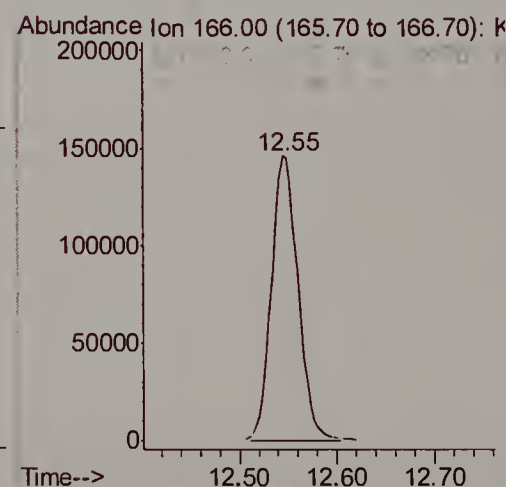
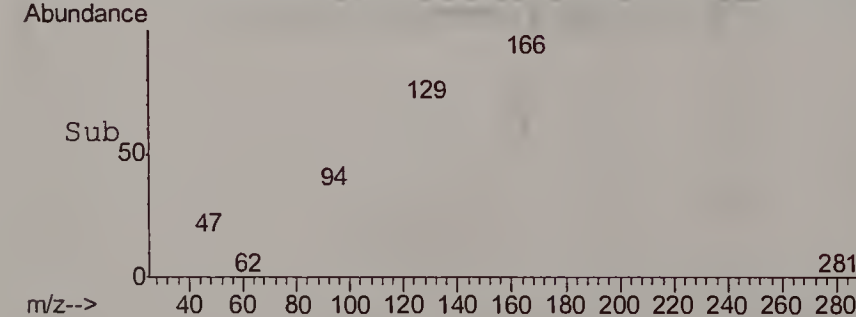
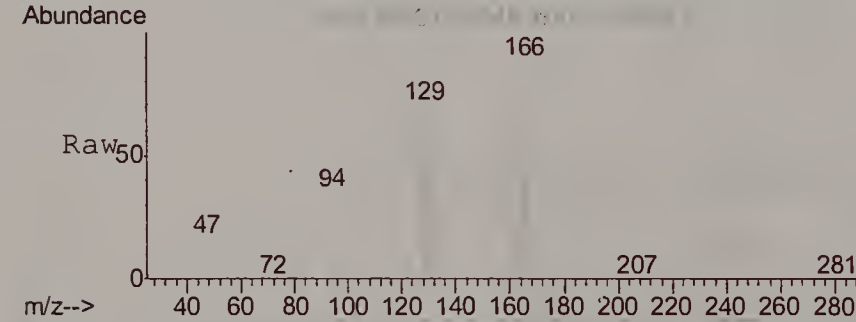
#53
trichloroethene
Concen: 1.46 ug/kg
RT: 10.36 min Scan# 2005
Delta R.T. 0.00 min
Lab File: K33892.D
Acq: 27 Apr 2009 12:30 pm

Tgt Ion	95	Resp	3119
Ion Ratio	Lower	Upper	
95	100		
130	85.5	84.7	144.7
132	90.3	81.6	141.6



#69
tetrachloroethene
Concen: 126.91 ug/kg
RT: 12.55 min Scan# 2626
Delta R.T. 0.00 min
Lab File: K33892.D
Acq: 27 Apr 2009 12:30 pm

Tgt Ion	166	Resp	275972
Ion Ratio <td>Lower</td> <td>Upper</td> <td></td>	Lower	Upper	
166	100		
168	47.8	18.9	78.9
129	70.0	44.2	104.2



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33860.D Vial: 19
Acq On : 24 Apr 2009 8:54 pm Operator: RobertT
Sample : m82272-2 Inst : gcms k
Misc : ms18104,msk1192,18.980,,100,10,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:42:41 2009 Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Tert butyl alcohol-d9	6.66	65	60109	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	210658	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	284116	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	107598	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	126787	50.00	ug/kg	0.00

System Monitoring Compounds						
40) dibromofluoromethane (s)	8.70	113	102890	49.66	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	99.32%
62) toluene-d8 (s)	11.73	98	344634	51.46	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	102.92%
84) bromofluorobenzene (s)	14.42	95	110654	50.08	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	100.16%

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33860.D K042409S.M Mon Apr 27 14:09:08 2009 MSK

6.1.3
6

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33860.D

Vial: 19

Acq On : 24 Apr 2009 8:54 pm

Operator: RobertT

Sample : m82272-2

Inst : gcms k

Misc : ms18104,msk1192,18.980,,100,10,1

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Apr 27 14:08 2009

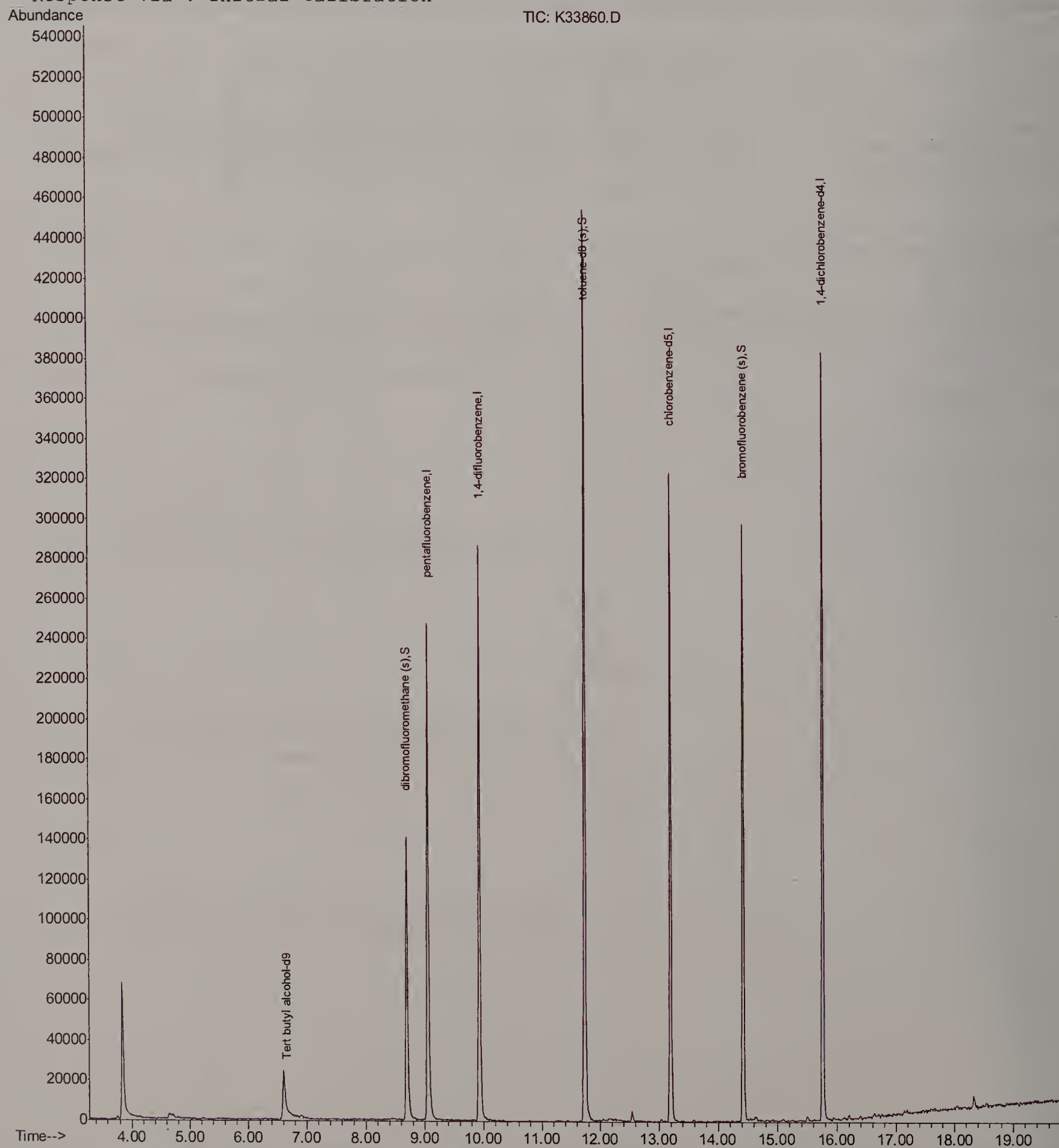
Quant Results File: K042409S.RES

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)

Title : SW-846 Method 8260

Last Update : Mon Apr 27 09:11:43 2009

Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33861.D
Acq On : 24 Apr 2009 9:19 pm
Sample : m82272-3
Misc : ms18104,msk1192,16.580,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:44:02 2009
Vial: 20
Operator: RobertT
Inst : gcms k
Multiplr: 1.00
Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.67	65	59467	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	215104	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	288062	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	108360	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	128942	50.00	ug/kg	0.00

System Monitoring Compounds						
40) dibromofluoromethane (s)	8.70	113	104634	49.46	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	98.92%
62) toluene-d8 (s)	11.73	98	349781	51.52	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	103.04%
84) bromofluorobenzene (s)	14.42	95	113483	50.50	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	101.00%

Target Compounds						Qvalue
36) cis-1,2-dichloroethene	8.38	96	11131	4.61	ug/kg	96
42) 1,1,1-trichloroethane	9.34	97	5125	1.88	ug/kg	98
53) trichloroethene	10.36	95	14707	6.77	ug/kg	98
69) tetrachloroethene	12.55	166	110640	50.30	ug/kg	95
88) n-propylbenzene	14.81	91	2067	0.26	ug/kg	78
91) 1,3,5-trimethylbenzene	15.08	105	4225	0.71	ug/kg	98
93) 1,2,4-trimethylbenzene	15.49	105	14237	2.32	ug/kg	99
94) sec-butylbenzene	15.61	105	1860	0.25	ug/kg	86
96) p-isopropyltoluene	15.78	119	4948	0.74	ug/kg	94
99) n-butylbenzene	16.20	91	4870	0.87	ug/kg#	1
103) naphthalene	18.33	128	8435	1.70	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33861.D K042409S.M Mon Apr 27 11:45:21 2009 MSK

6.1.4
6

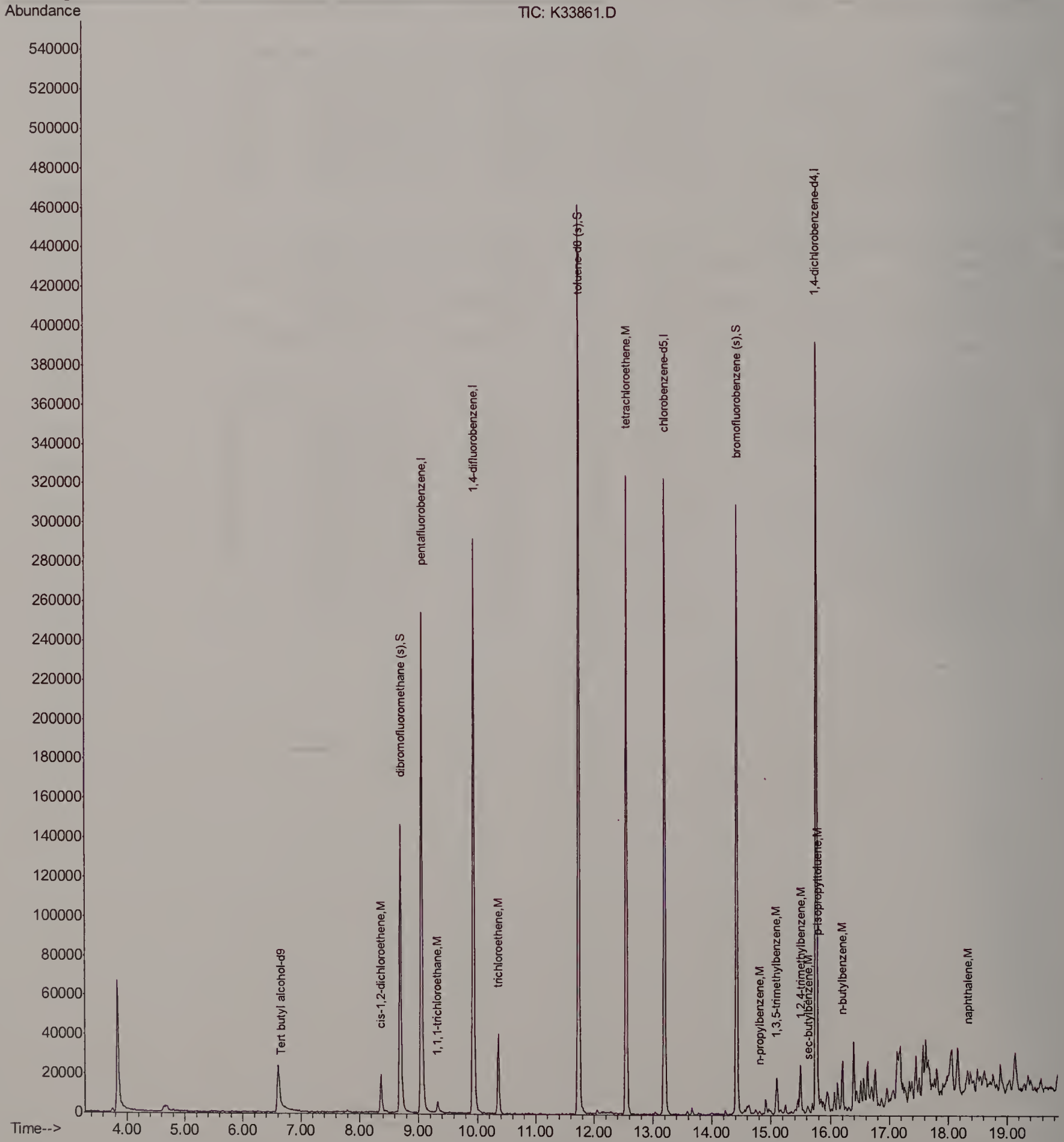
Quantitation Report (QT Reviewed)

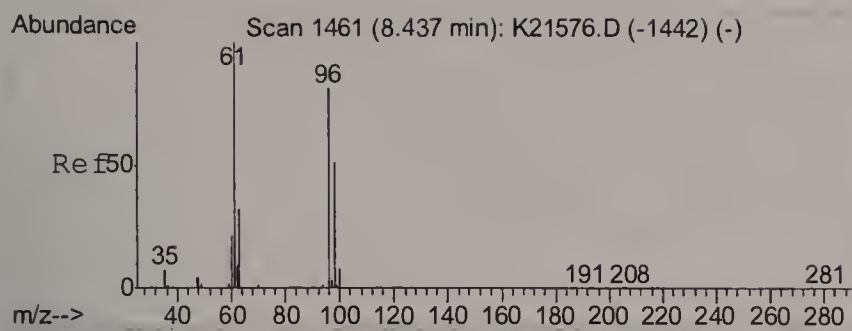
Data File : C:\MSDCHEM\1\DATA\K33861.D
 Acq On : 24 Apr 2009 9:19 pm
 Sample : m82272-3
 Misc : ms18104,msk1192,16.580,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 11:44 2009

Vial: 20
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

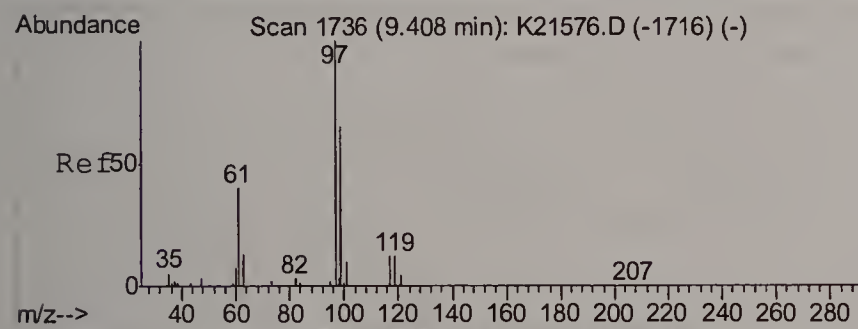
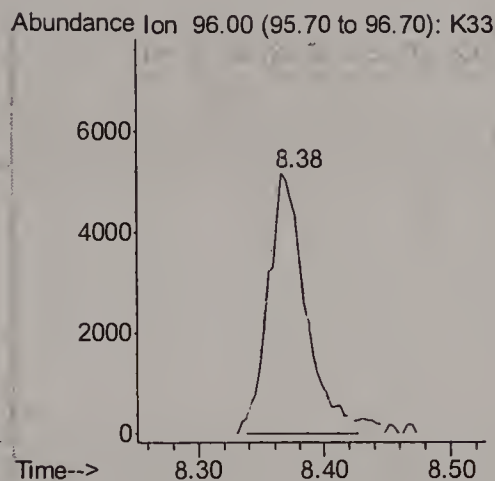
Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Initial Calibration





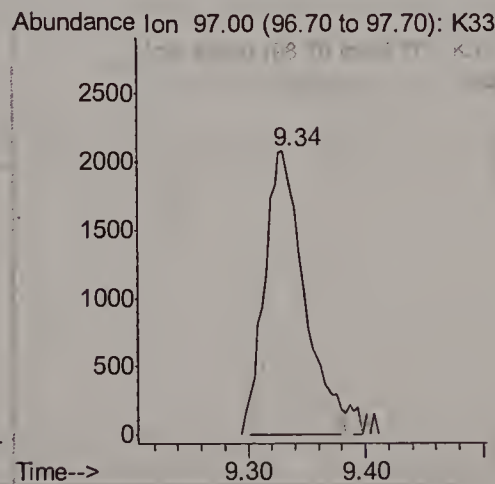
#36
cis-1,2-dichloroethene
Concen: 4.61 ug/kg
RT: 8.38 min Scan# 1443
Delta R.T. 0.00 min
Lab File: K33861.D
Acq: 24 Apr 2009 9:19 pm

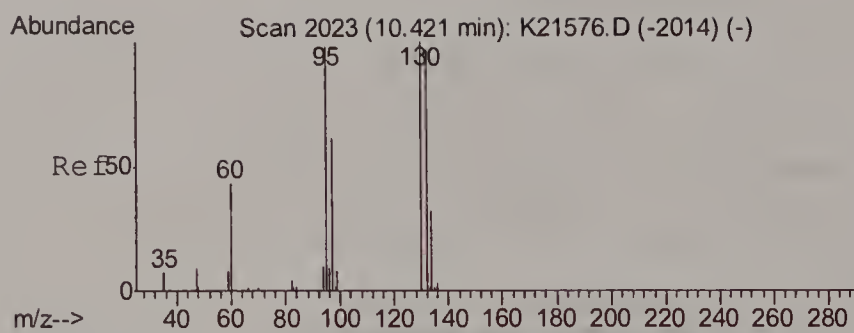
Tgt Ion:	96	Resp:	11131
Ion Ratio	Lower	Upper	
96	100		
61	109.9	83.7	143.7
98	63.2	36.9	96.9



#42
1,1,1-trichloroethane
Concen: 1.88 ug/kg
RT: 9.34 min Scan# 1716
Delta R.T. -0.01 min
Lab File: K33861.D
Acq: 24 Apr 2009 9:19 pm

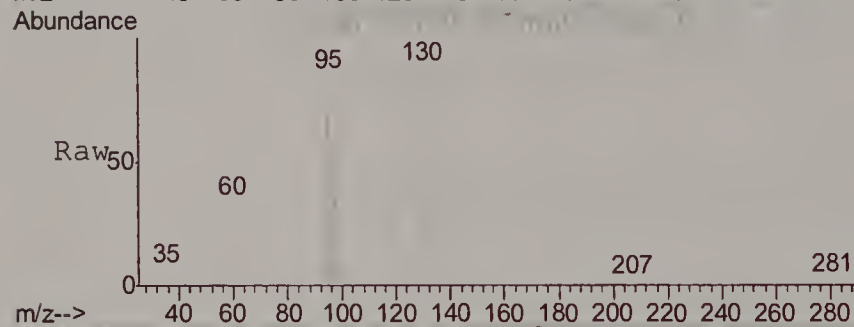
Tgt Ion:	97	Resp:	5125
Ion Ratio	Lower	Upper	
97	100		
99	67.4	38.4	98.4
61	36.2	7.6	67.6



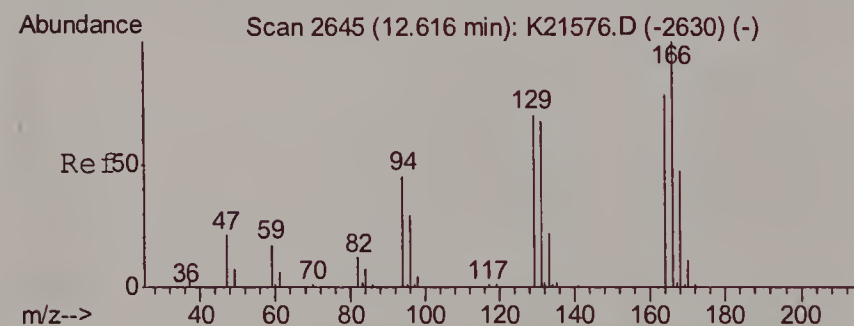
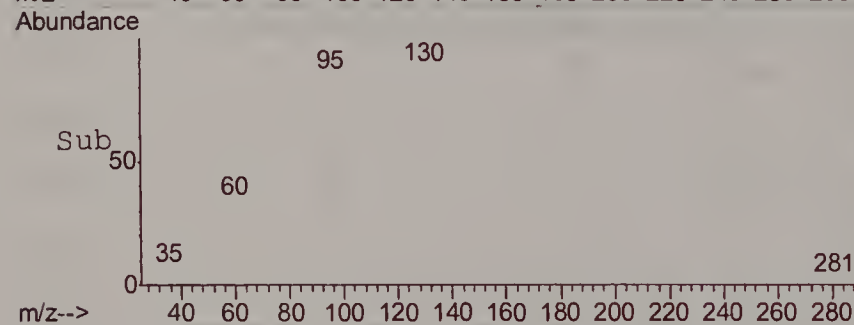
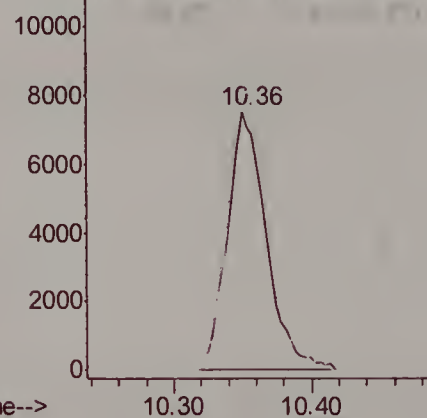


#53
trichloroethene
Concen: 6.77 ug/kg
RT: 10.36 min Scan# 2005
Delta R.T. 0.00 min
Lab File: K33861.D
Acq: 24 Apr 2009 9:19 pm

Tgt Ion:	95	Resp:	14707
Ion Ratio	Lower	Upper	
95	100		
130	117.0	84.7	144.7
132	114.2	81.6	141.6

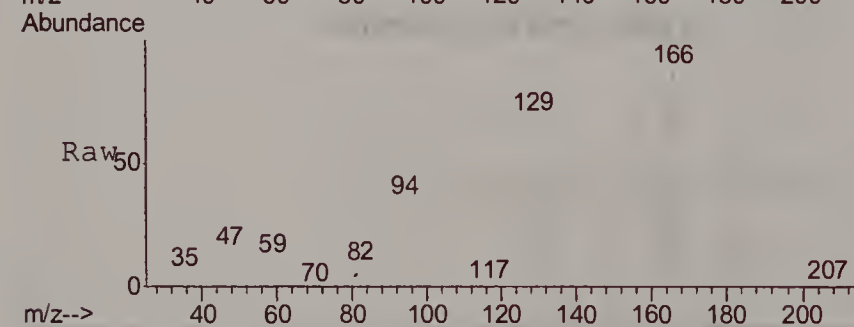


Abundance Ion 95.00 (94.70 to 95.70): K33

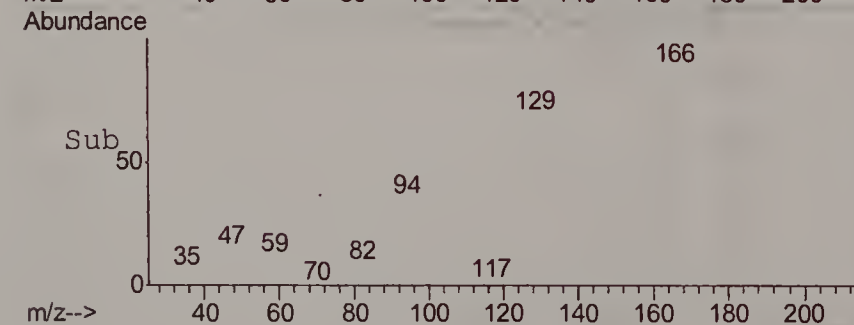
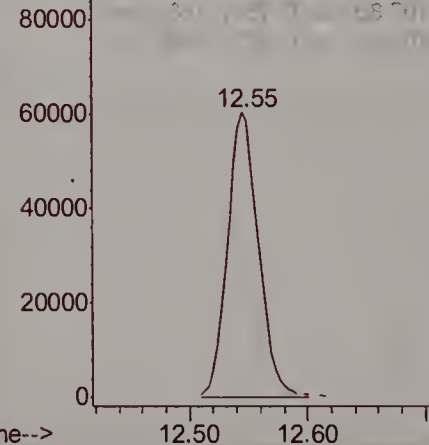


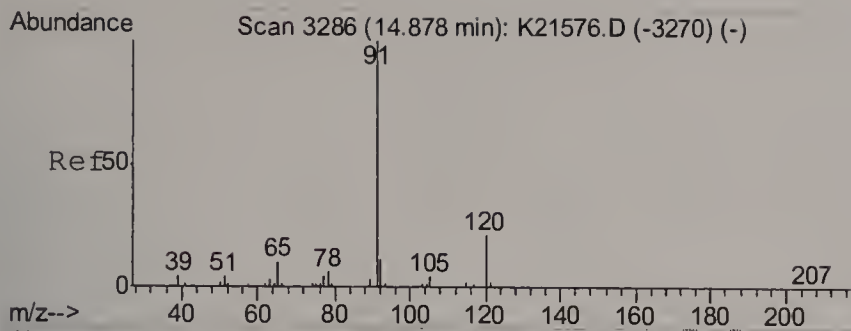
#69
tetrachloroethene
Concen: 50.30 ug/kg
RT: 12.55 min Scan# 2626
Delta R.T. 0.00 min
Lab File: K33861.D
Acq: 24 Apr 2009 9:19 pm

Tgt Ion:	166	Resp:	110640
Ion Ratio	Lower	Upper	
166	100		
168	50.3	18.9	78.9
129	68.9	44.2	104.2



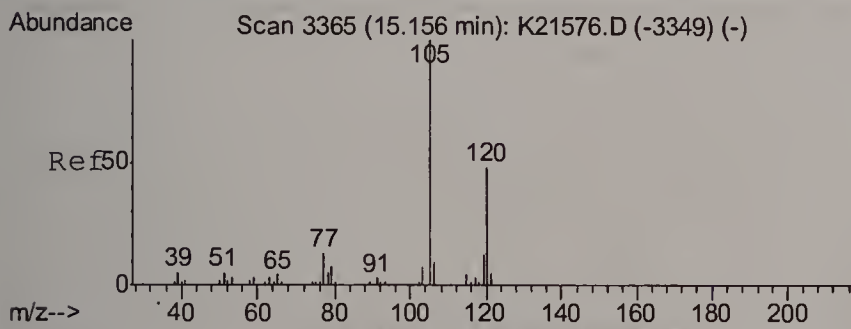
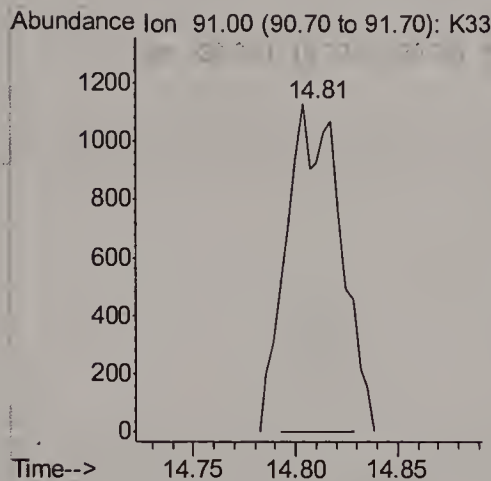
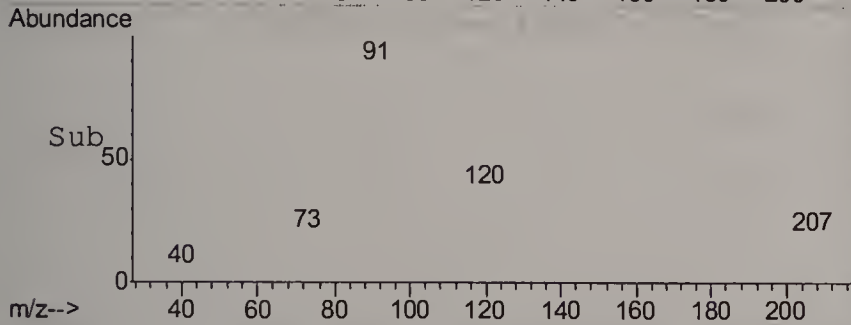
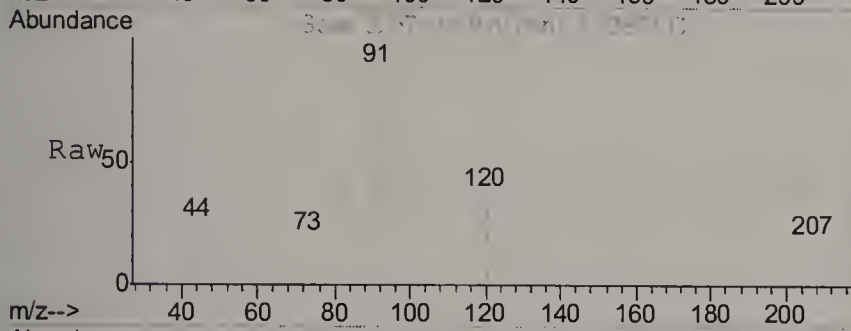
Abundance Ion 166.00 (165.70 to 166.70): K





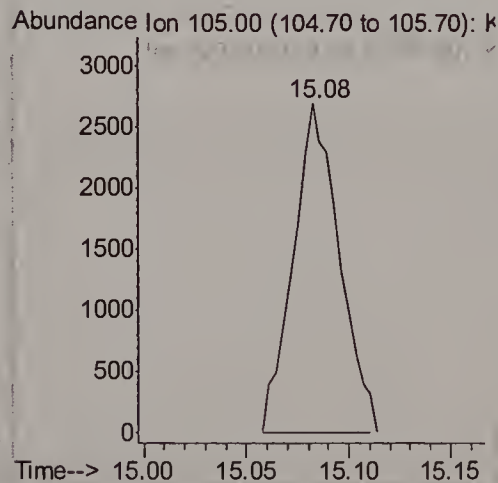
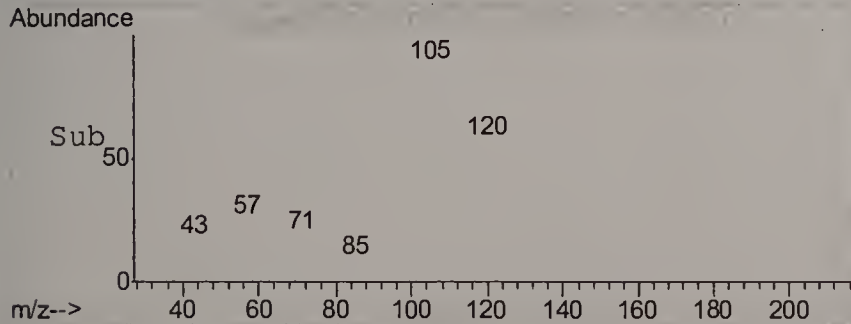
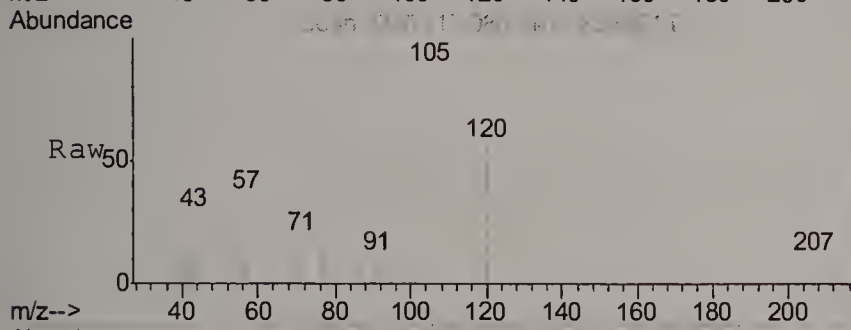
#88
n-propylbenzene
Concen: 0.26 ug/kg
RT: 14.81 min Scan# 3267
Delta R.T. 0.00 min
Lab File: K33861.D
Acq: 24 Apr 2009 9:19 pm

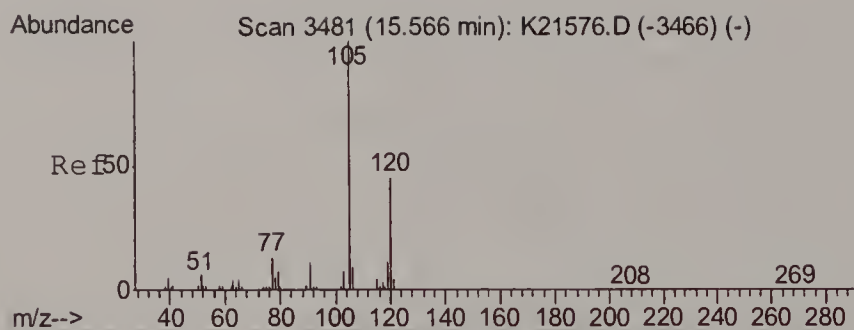
Tgt Ion: 91 Resp: 2067
Ion Ratio Lower Upper
91 100
120 38.3 0.0 57.0



#91
1,3,5-trimethylbenzene
Concen: 0.71 ug/kg
RT: 15.08 min Scan# 3345
Delta R.T. 0.00 min
Lab File: K33861.D
Acq: 24 Apr 2009 9:19 pm

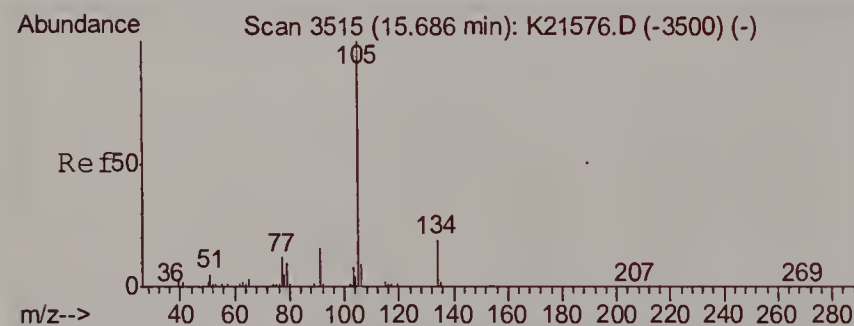
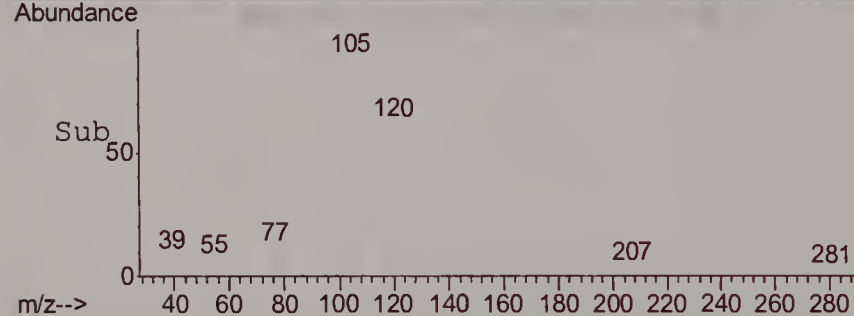
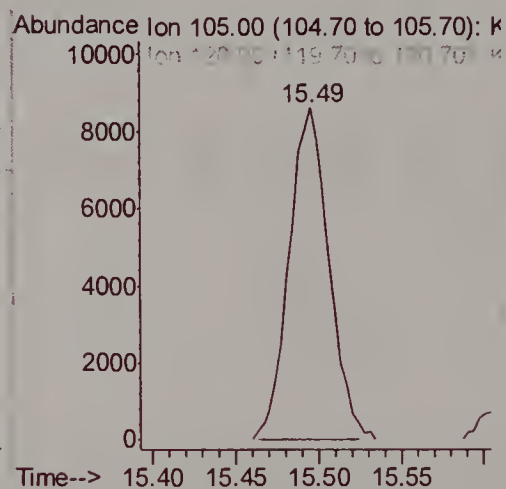
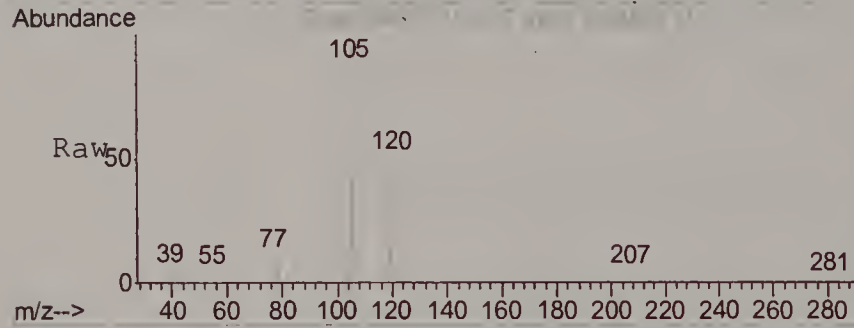
Tgt Ion: 105 Resp: 4225
Ion Ratio Lower Upper
105 100
120 56.8 25.0 85.0





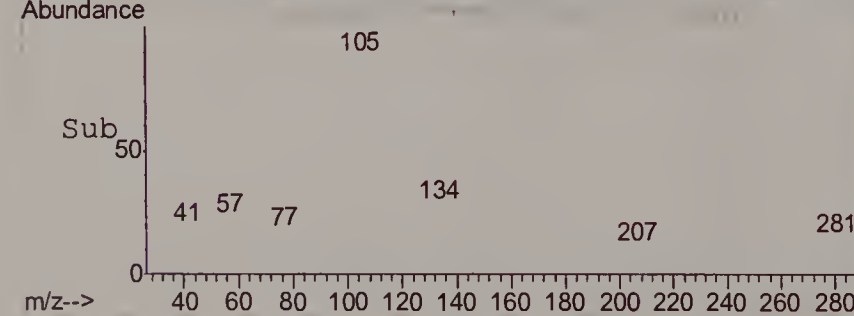
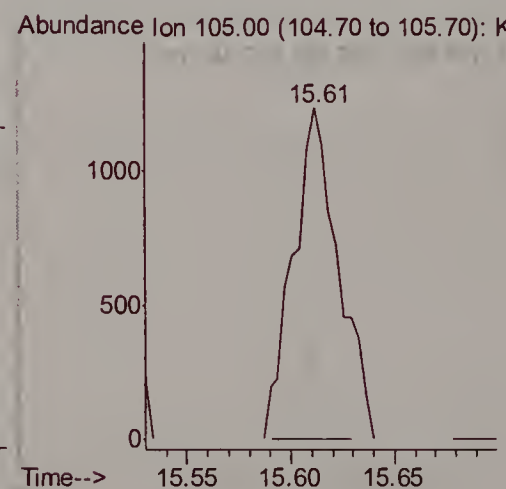
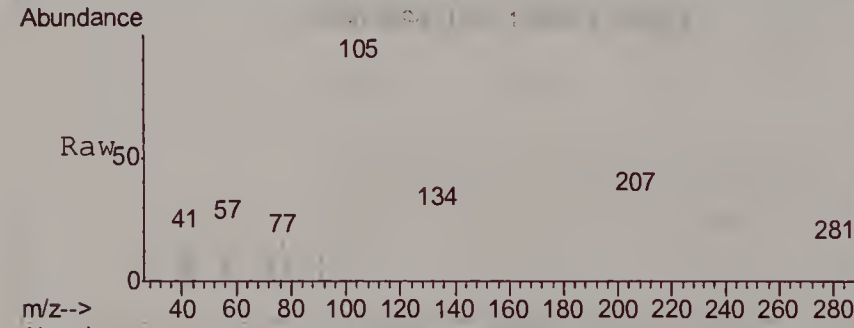
#93
1,2,4-trimethylbenzene
Concen: 2.32 ug/kg
RT: 15.49 min Scan# 3461
Delta R.T. 0.00 min
Lab File: K33861.D
Acq: 24 Apr 2009 9:19 pm

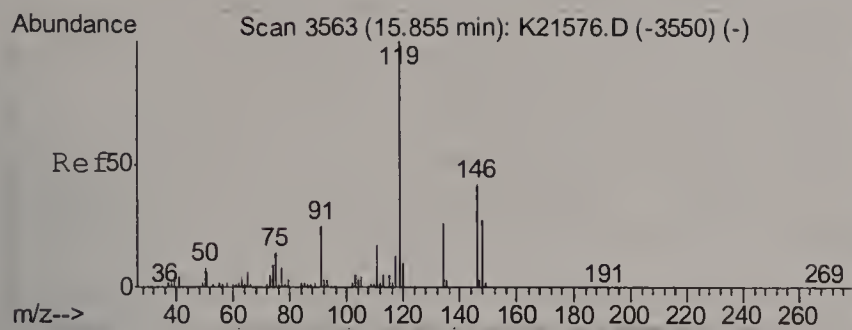
Tgt Ion:	105	Resp:	14237
Ion Ratio	Lower	Upper	
105	100		
120	50.9	21.9	81.9



#94
sec-butylbenzene
Concen: 0.25 ug/kg
RT: 15.61 min Scan# 3494
Delta R.T. 0.00 min
Lab File: K33861.D
Acq: 24 Apr 2009 9:19 pm

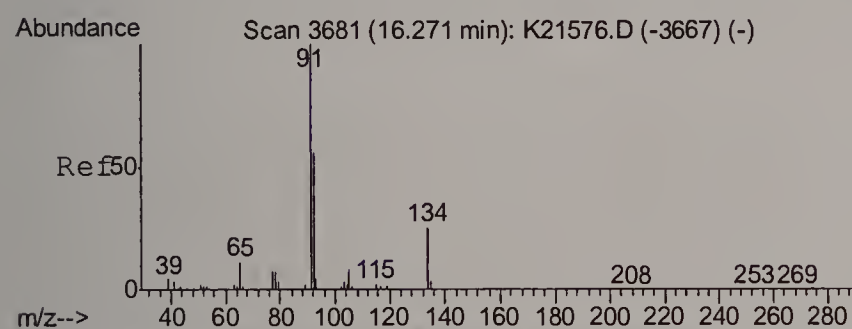
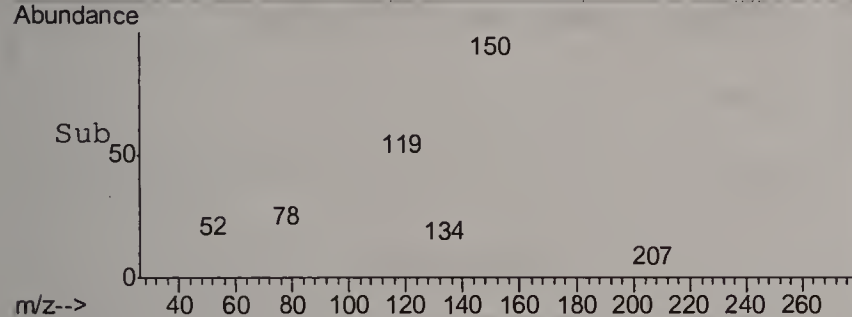
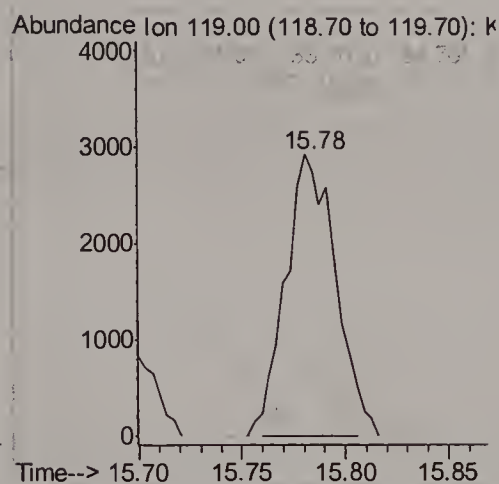
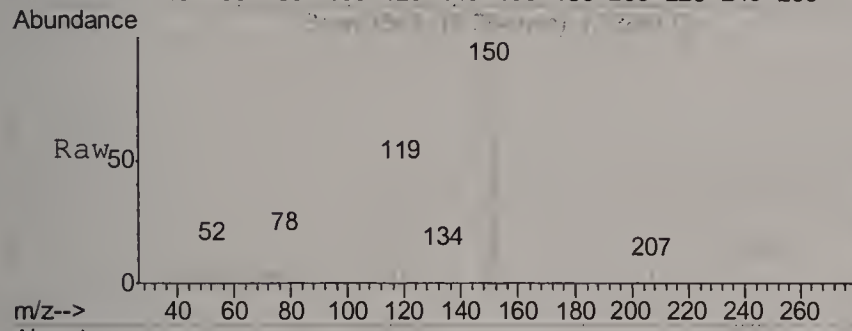
Tgt Ion:	105	Resp:	1860
Ion Ratio	Lower	Upper	
105	100		
134	28.4	0.0	51.6





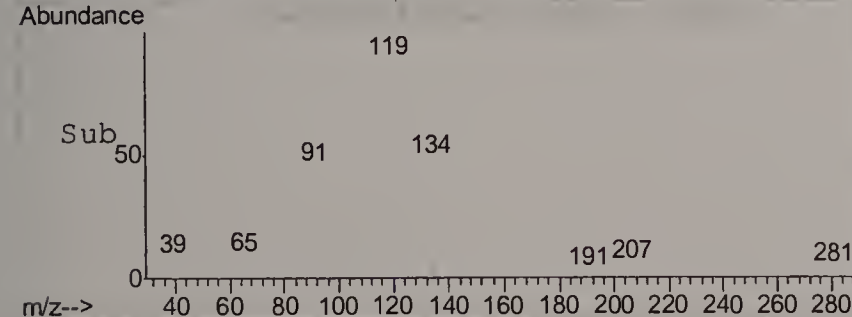
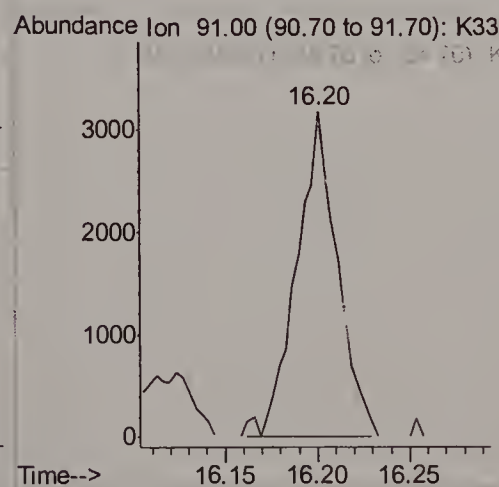
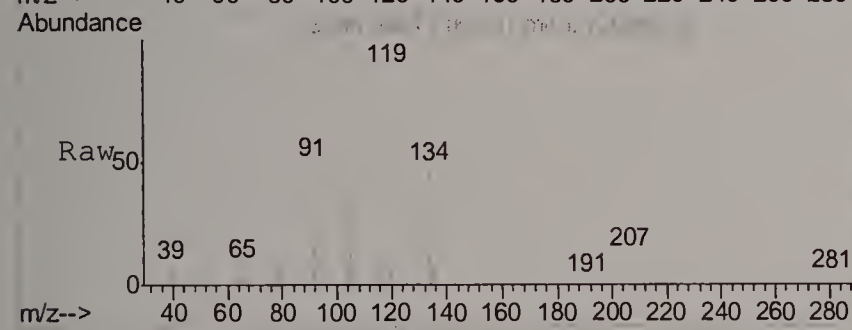
#96
p-isopropyltoluene
Concen: 0.74 ug/kg
RT: 15.78 min Scan# 3543
Delta R.T. 0.00 min
Lab File: K33861.D
Acq: 24 Apr 2009 9:19 pm

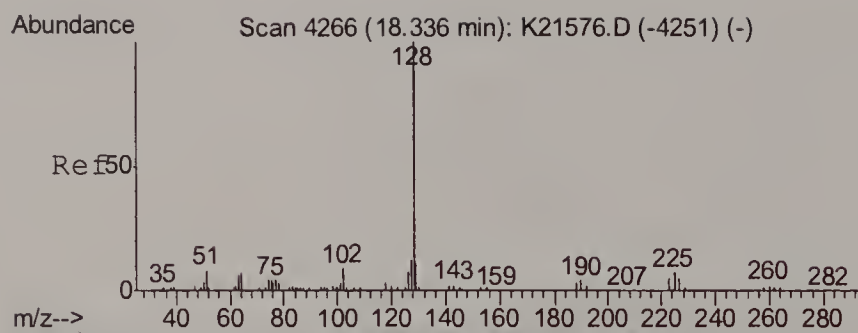
Tgt Ion	Ratio	Lower	Upper
119	100		
134	27.6	0.0	57.0
91	26.3	0.0	50.2



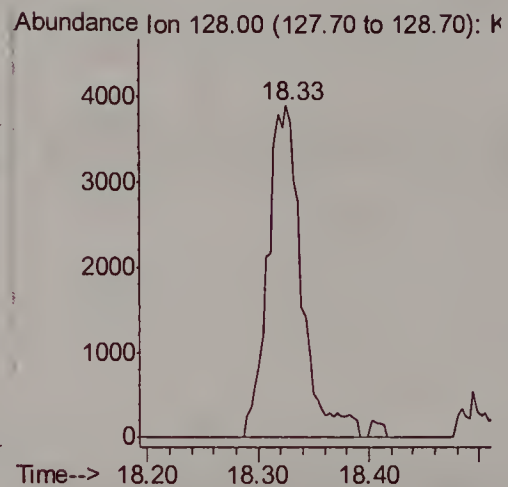
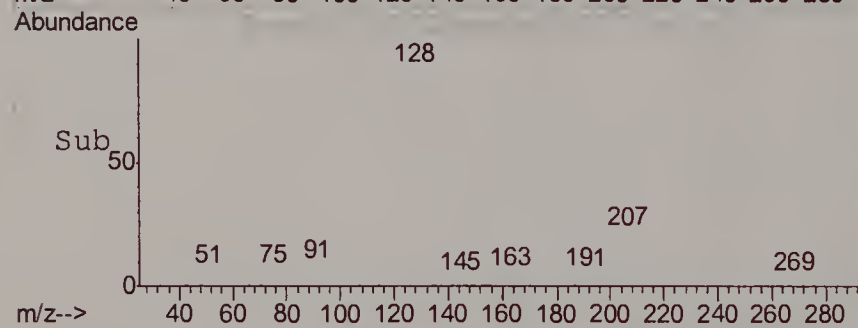
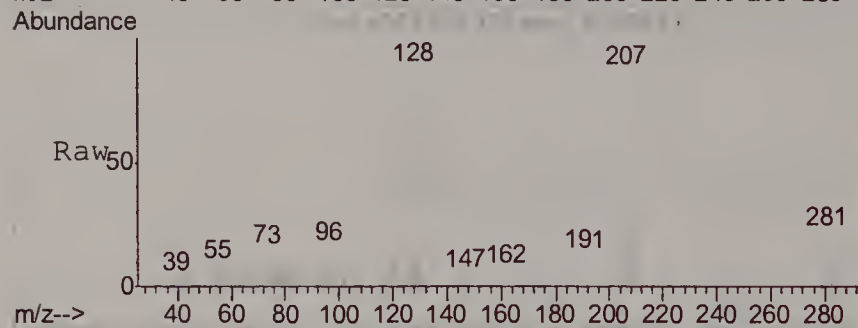
#99
n-butylbenzene
Concen: 0.87 ug/kg
RT: 16.20 min Scan# 3661
Delta R.T. -0.00 min
Lab File: K33861.D
Acq: 24 Apr 2009 9:19 pm

Tgt Ion	Ratio	Lower	Upper
91	100		
134	95.7	0.7	60.7#





#103
naphthalene
Concen: 1.70 ug/kg
RT: 18.33 min Scan# 4264
Delta R.T. 0.00 min
Lab File: K33861.D
Acq: 24 Apr 2009 9:19 pm
Tgt Ion:128 Resp: 8435



Manual Integrations
APPROVED
(compounds with "m" flag)
Doug Yargeau
04/27/09 13:55

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33862.D
Acq On : 24 Apr 2009 9:45 pm
Sample : m82272-4
Misc : ms18104,msk1192,14.320,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:46:05 2009
Vial: 21
Operator: RobertT
Inst : gcms k
Multiplr: 1.00
Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.68	65	59103m	500.00	ug/kg	0.02
4) pentafluorobenzene	9.06	168	214775	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	287110	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	107167	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	127402	50.00	ug/kg	0.00

System Monitoring Compounds						
40) dibromofluoromethane (s)	8.70	113	105030	49.72	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	99.44%
62) toluene-d8 (s)	11.73	98	351976	52.01	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	104.02%
84) bromofluorobenzene (s)	14.42	95	112371	50.61	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	101.22%

Target Compounds						Qvalue
64) toluene	11.81	92	2569	0.56	ug/kg	87
69) tetrachloroethene	12.55	166	7059	3.25	ug/kg	94
76) ethylbenzene	13.40	91	1201	0.16	ug/kg	84
77) m,p-xylene	13.58	106	1402	0.45	ug/kg#	53
79) styrene	13.93	104	1429	0.31	ug/kg	73
83) isopropylbenzene	14.36	105	1252	0.20	ug/kg	91
88) n-propylbenzene	14.54	91	1372	0.18	ug/kg	48
91) 1,3,5-trimethylbenzene	15.09	105	1471	0.25	ug/kg	90
93) 1,2,4-trimethylbenzene	15.50	105	4827	0.80	ug/kg	96
94) sec-butylbenzene	15.50	105	4827	0.65	ug/kg	54

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33862.D K042409S.M Mon Apr 27 11:47:25 2009 MSK

6.1.5
6

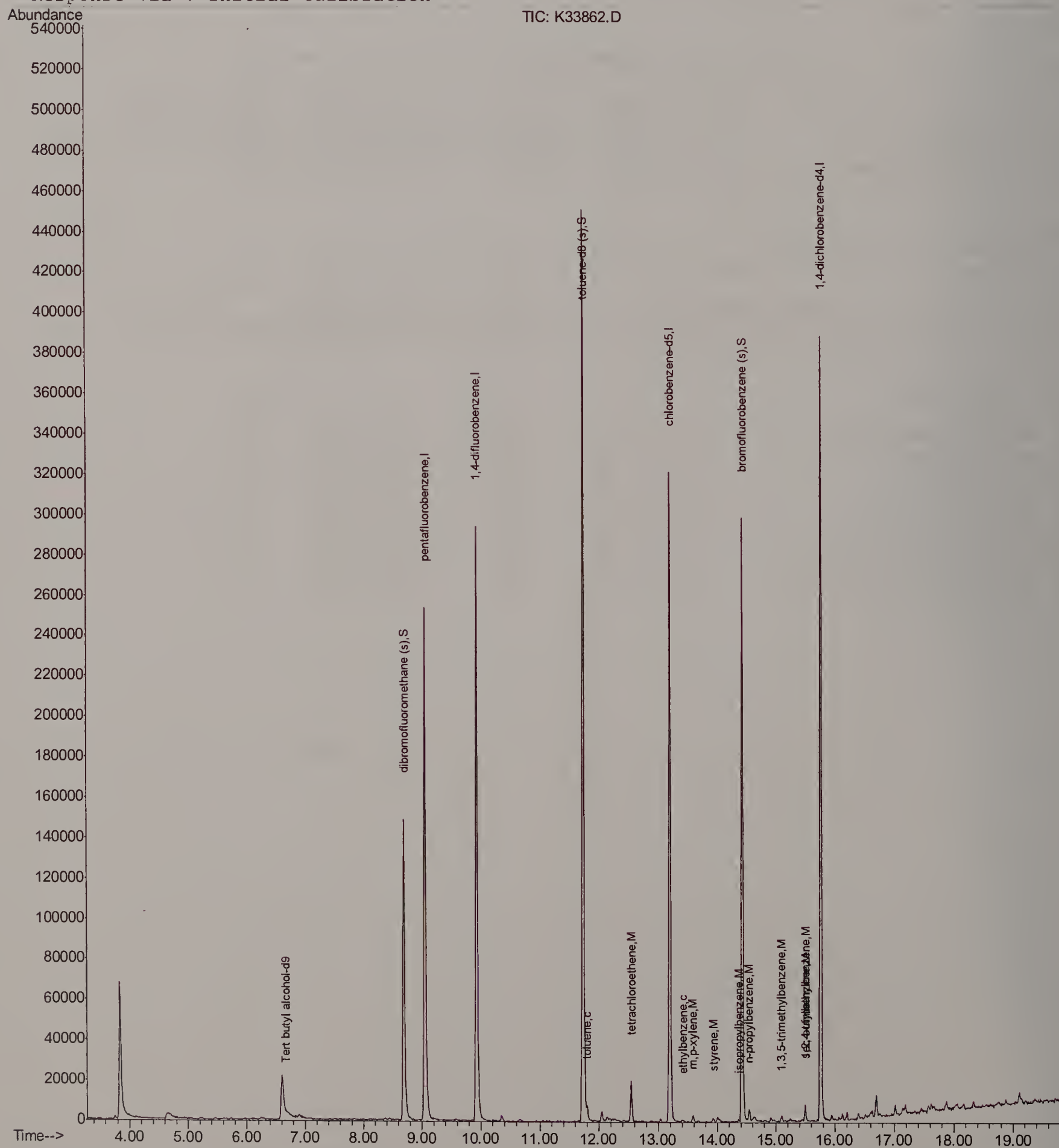
Quantitation Report (QT Reviewed)

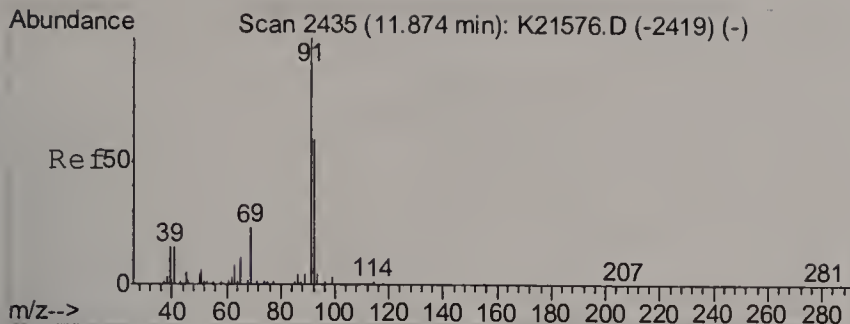
Data File : C:\MSDCHEM\1\DATA\K33862.D
Acq On : 24 Apr 2009 9:45 pm
Sample : m82272-4
Misc : ms18104,msk1192,14.320,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:47 2009

Vial: 21
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

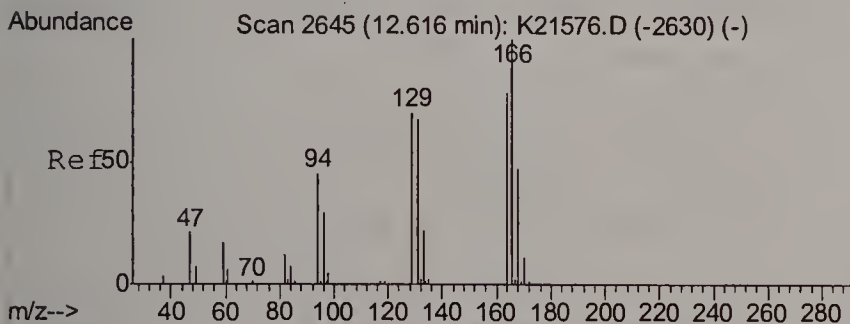
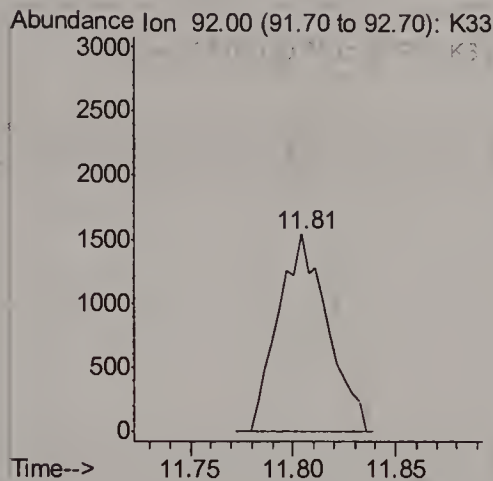
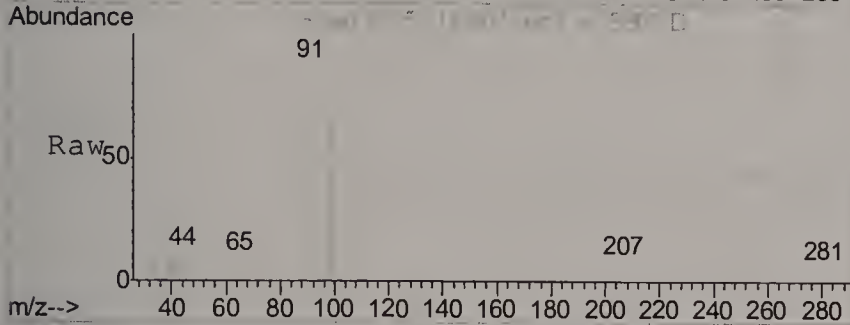
Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration





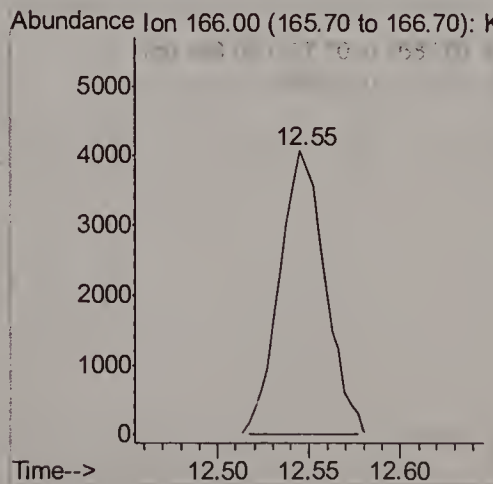
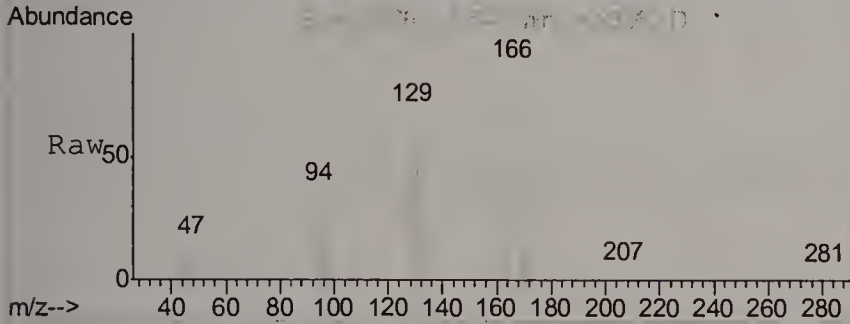
#64
toluene
Concen: 0.56 ug/kg
RT: 11.81 min Scan# 2415
Delta R.T. 0.00 min
Lab File: K33862.D
Acq: 24 Apr 2009 9:45 pm

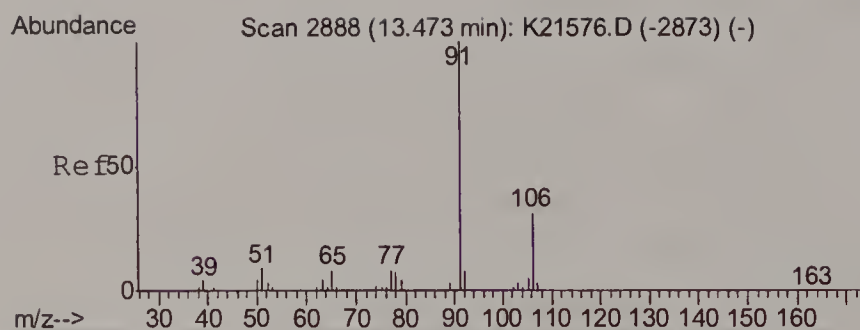
Tgt Ion: 92 Resp: 2569
Ion Ratio Lower Upper
92 100
91 149.6 137.7 197.7



#69
tetrachloroethene
Concen: 3.25 ug/kg
RT: 12.55 min Scan# 2626
Delta R.T. 0.00 min
Lab File: K33862.D
Acq: 24 Apr 2009 9:45 pm

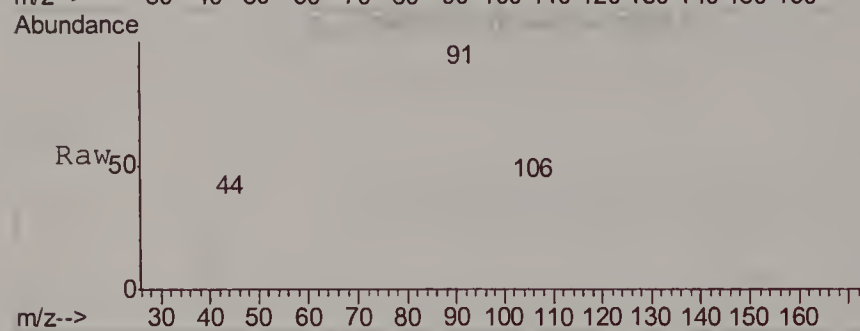
Tgt Ion: 166 Resp: 7059
Ion Ratio Lower Upper
166 100
168 44.5 18.9 78.9
129 70.0 44.2 104.2



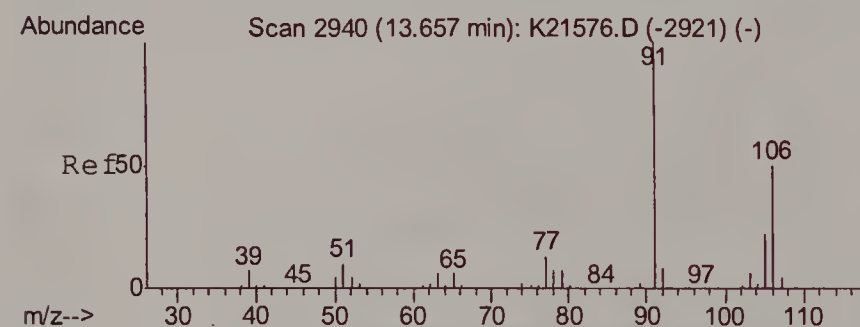
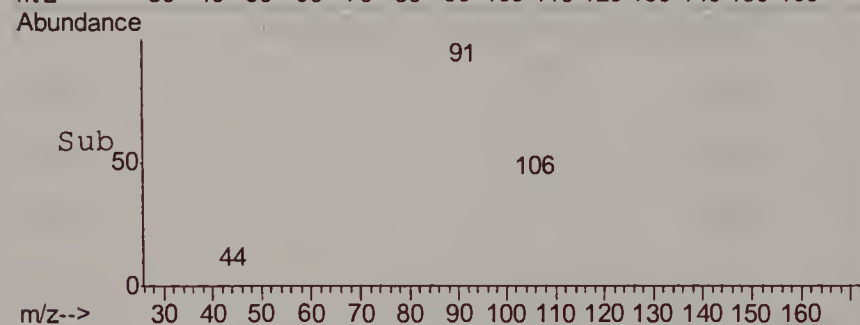
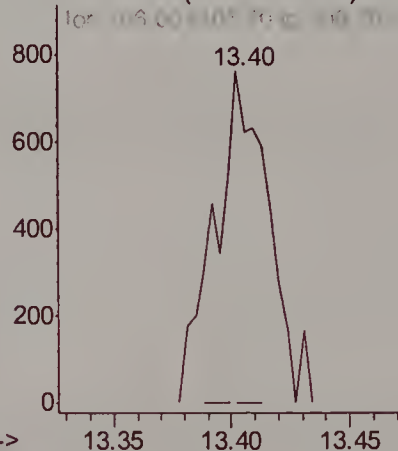


#76
ethylbenzene
Concen: 0.16 ug/kg
RT: 13.40 min Scan# 2869
Delta R.T. 0.00 min
Lab File: K33862.D
Acq: 24 Apr 2009 9:45 pm

Tgt Ion: 91 Resp: 1201
Ion Ratio Lower Upper
91 100
106 43.0 4.1 64.1

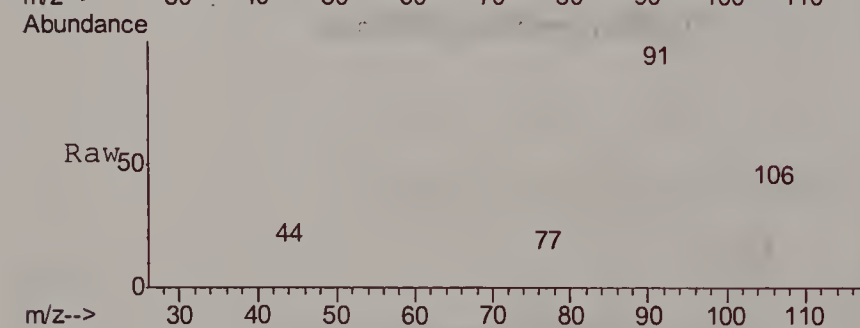


Abundance Ion 91.00 (90.70 to 91.70): K33

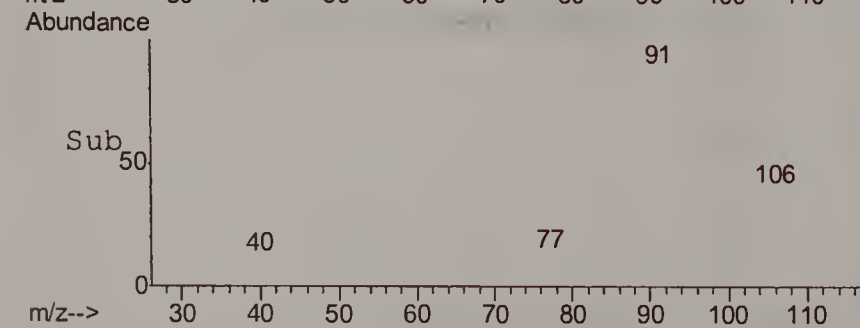
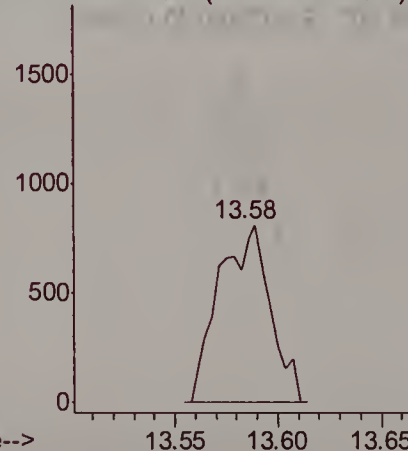


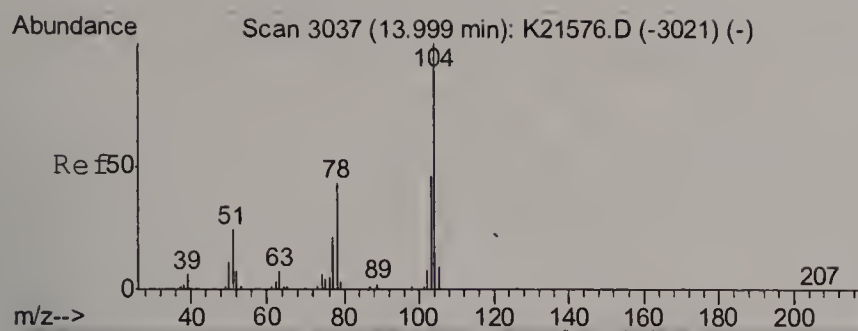
#77
m,p-xylene
Concen: 0.45 ug/kg
RT: 13.58 min Scan# 2919
Delta R.T. -0.00 min
Lab File: K33862.D
Acq: 24 Apr 2009 9:45 pm

Tgt Ion: 106 Resp: 1402
Ion Ratio Lower Upper
106 100
91 249.0 152.0 212.0#



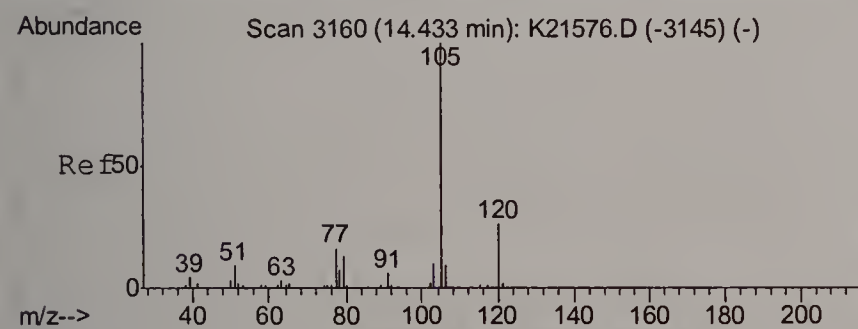
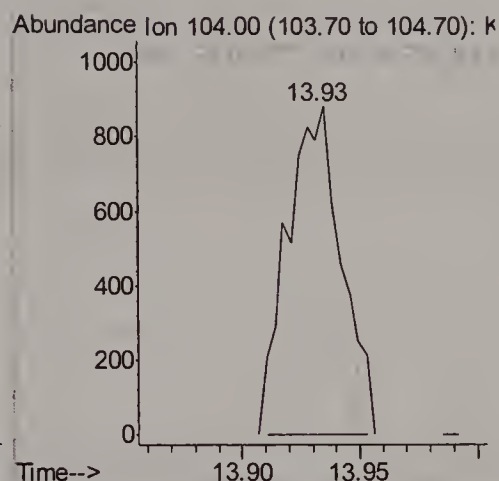
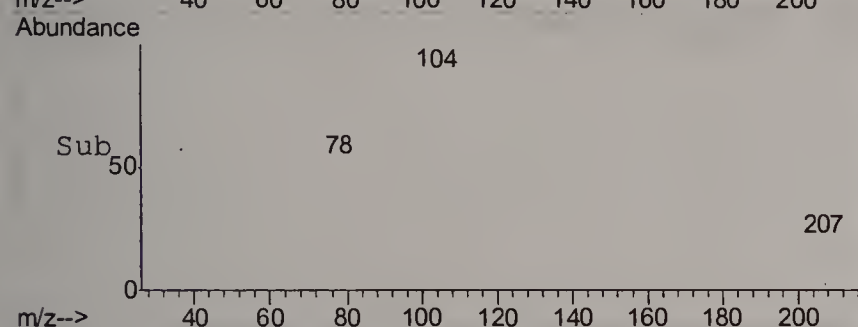
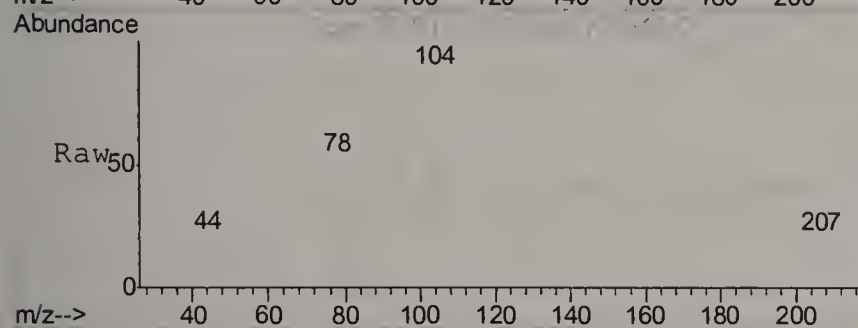
Abundance Ion 106.00 (105.70 to 106.70): K





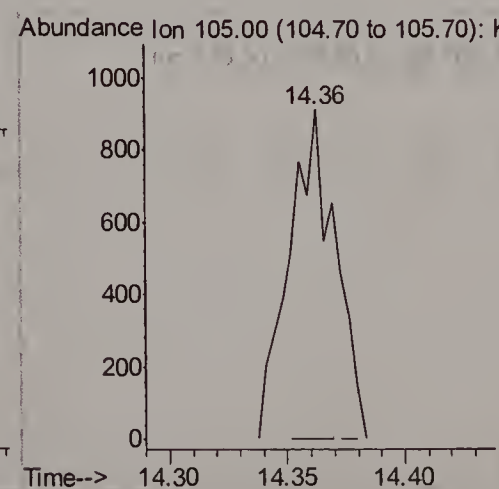
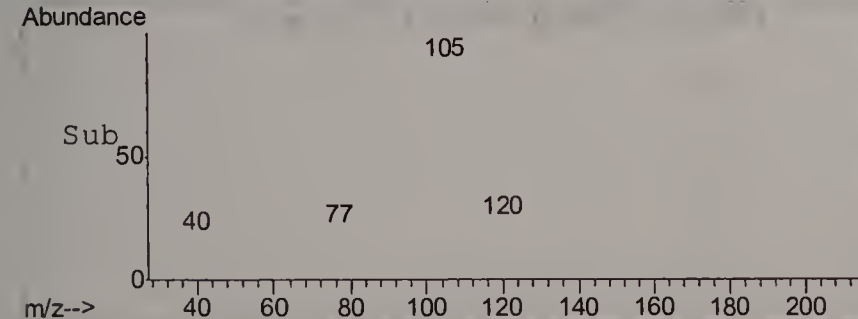
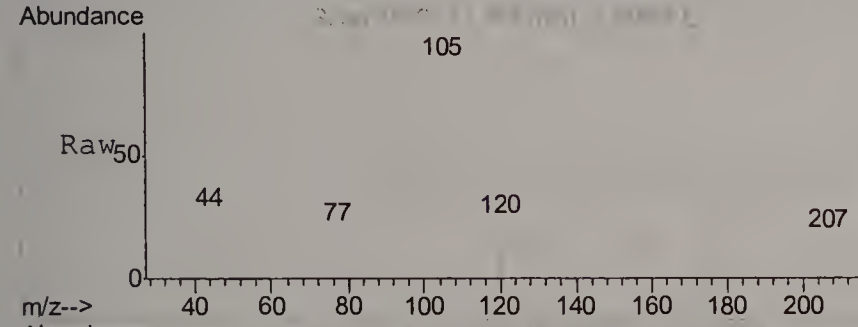
#79
styrene
Concen: 0.31 ug/kg
RT: 13.93 min Scan# 3018
Delta R.T. 0.01 min
Lab File: K33862.D
Acq: 24 Apr 2009 9:45 pm

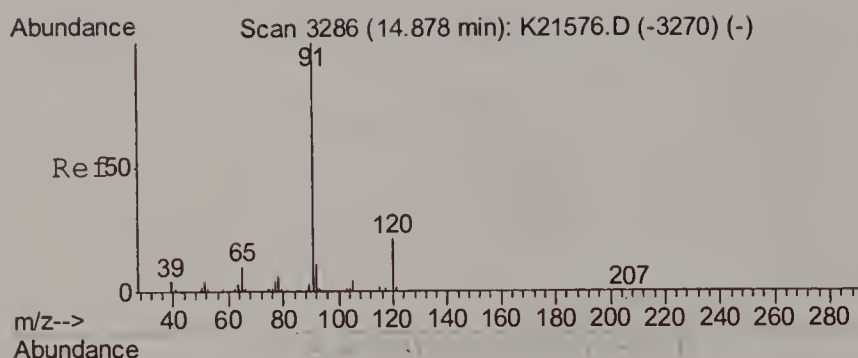
Tgt Ion:104 Resp: 1429
Ion Ratio Lower Upper
104 100
78 52.9 6.7 66.7



#83
isopropylbenzene
Concen: 0.20 ug/kg
RT: 14.36 min Scan# 3140
Delta R.T. -0.00 min
Lab File: K33862.D
Acq: 24 Apr 2009 9:45 pm

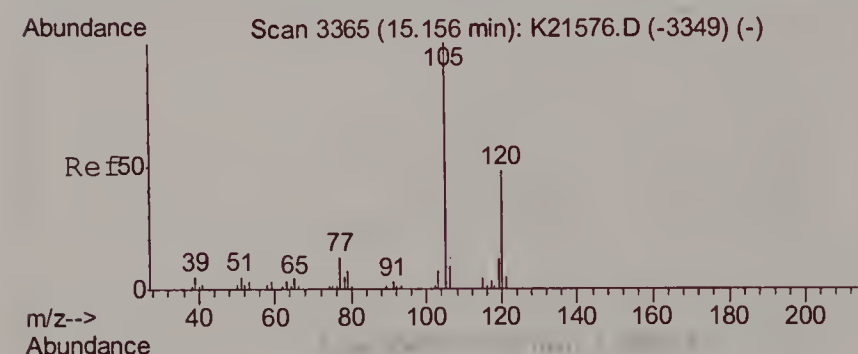
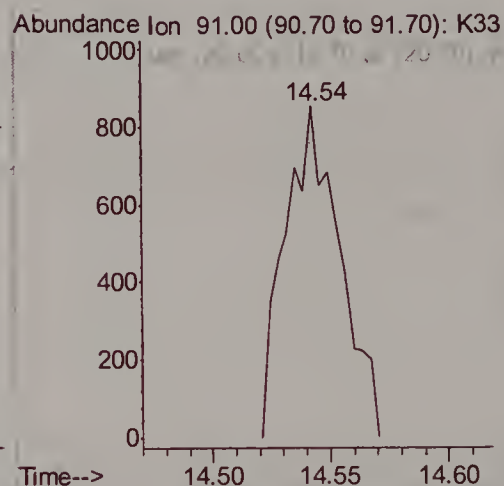
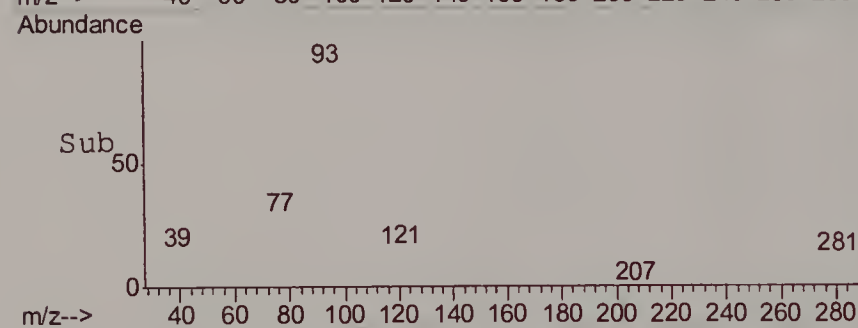
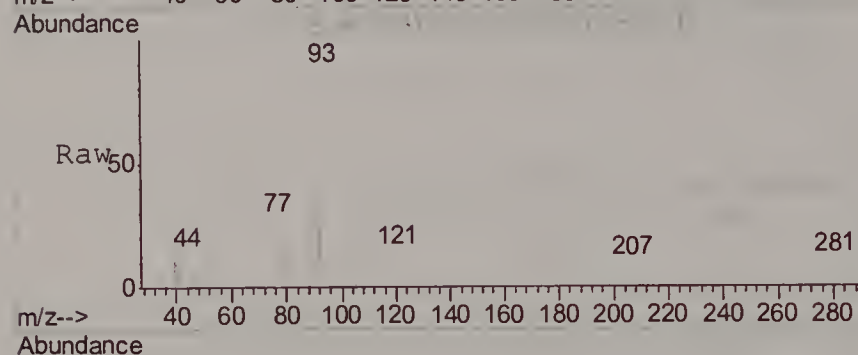
Tgt Ion:105 Resp: 1252
Ion Ratio Lower Upper
105 100
120 24.4 0.0 59.0





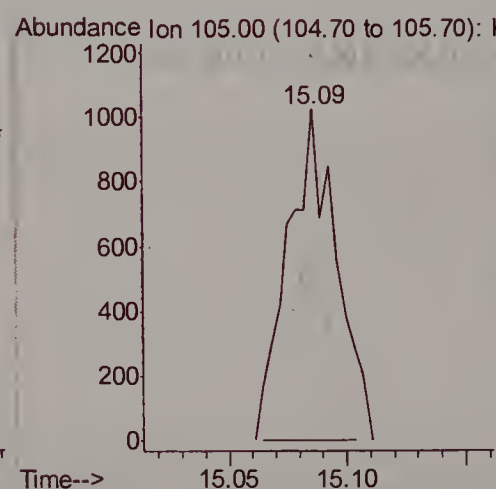
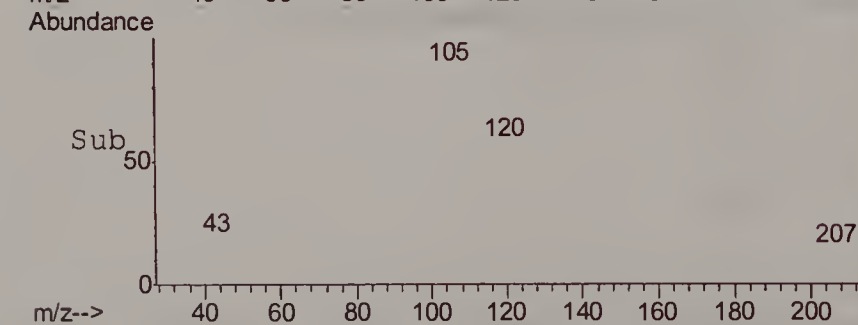
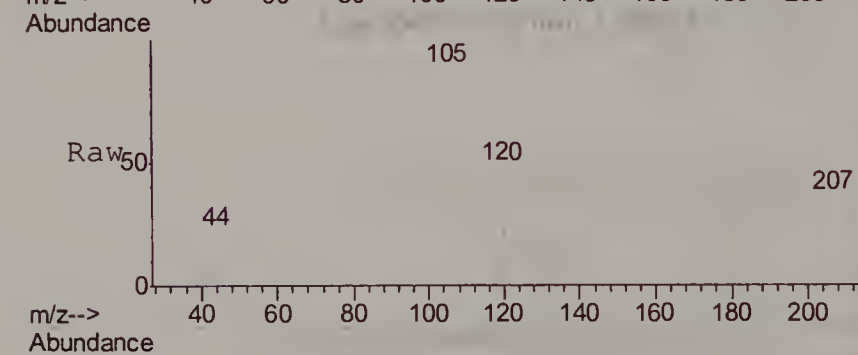
#88
n-propylbenzene
Concen: 0.18 ug/kg
RT: 14.54 min Scan# 3191
Delta R.T. -0.26 min
Lab File: K33862.D
Acq: 24 Apr 2009 9:45 pm

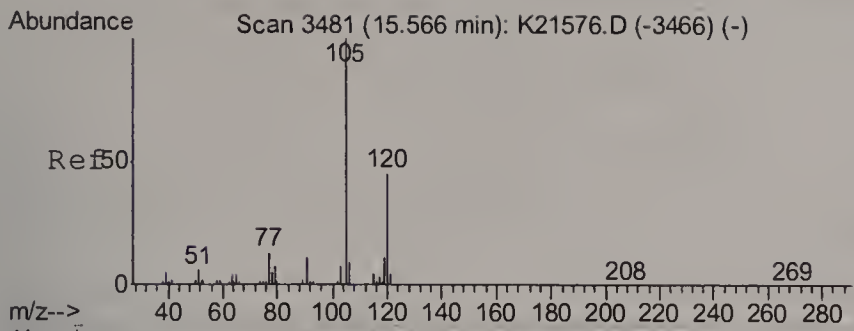
Tgt Ion:	91	Resp:	1372
Ion Ratio	Lower	Upper	
91	100		
120	0.0	0.0	57.0



#91
1,3,5-trimethylbenzene
Concen: 0.25 ug/kg
RT: 15.09 min Scan# 3345
Delta R.T. 0.00 min
Lab File: K33862.D
Acq: 24 Apr 2009 9:45 pm

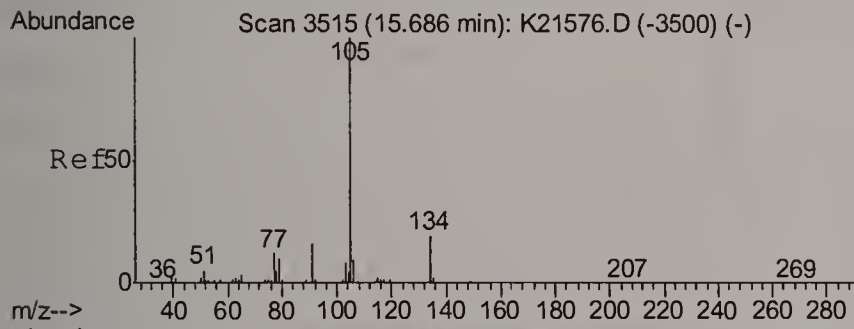
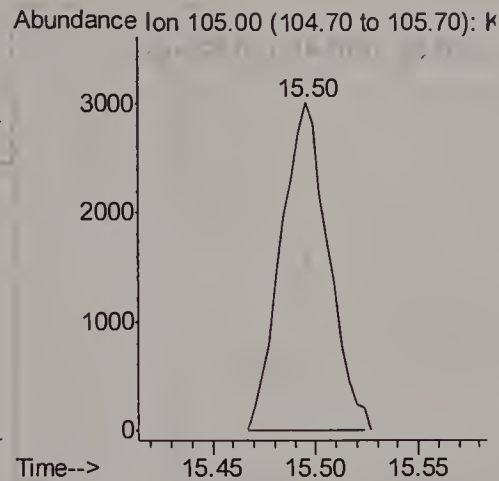
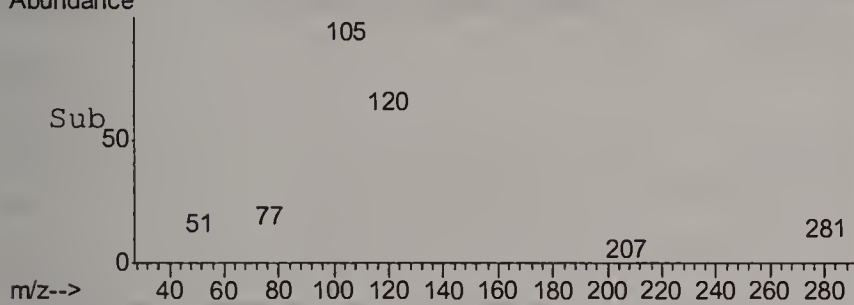
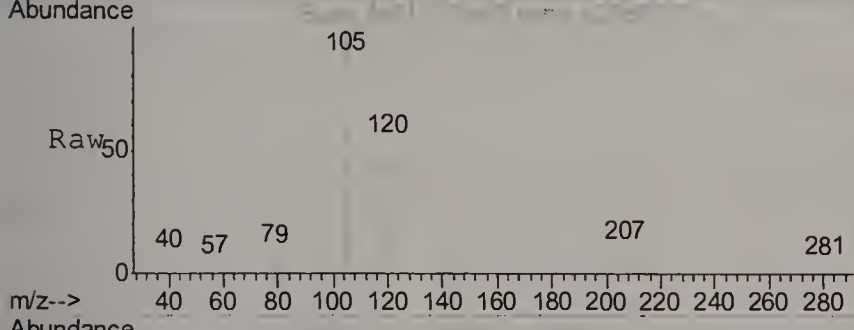
Tgt Ion:	105	Resp:	1471
Ion Ratio	Lower	Upper	
105	100		
120	47.9	25.0	85.0





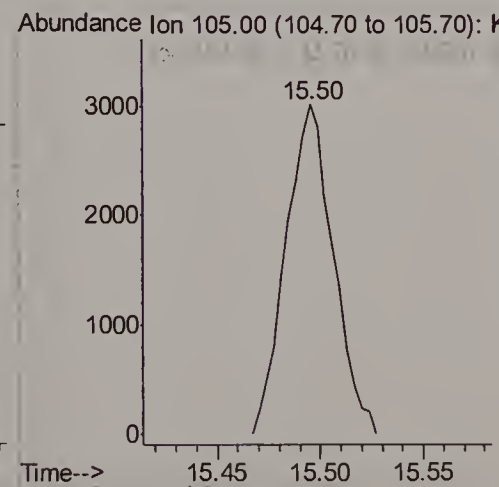
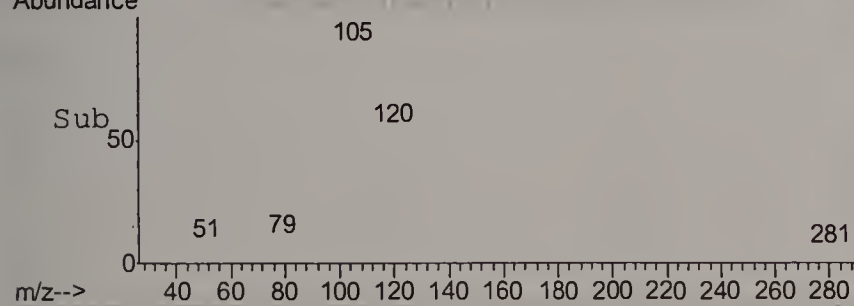
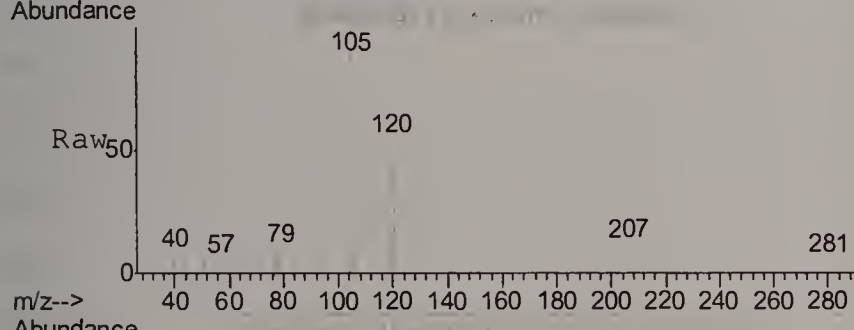
#93
1,2,4-trimethylbenzene
Concen: 0.80 ug/kg
RT: 15.50 min Scan# 3461
Delta R.T. 0.00 min
Lab File: K33862.D
Acq: 24 Apr 2009 9:45 pm

Tgt Ion	Resp	Lower	Upper
105	4827		
105	100		
120	54.7	21.9	81.9



#94
sec-butylbenzene
Concen: 0.65 ug/kg
RT: 15.50 min Scan# 3461
Delta R.T. -0.12 min
Lab File: K33862.D
Acq: 24 Apr 2009 9:45 pm

Tgt Ion	Resp	Lower	Upper
105	4827		
105	100		
134	0.0	0.0	51.6



6.1.5
6

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33855.D
Acq On : 24 Apr 2009 6:44 pm
Sample : mb
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 10:08:54 2009

Vial: 14
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.69	65	61222	500.00	ug/kg	0.03
4) pentafluorobenzene	9.06	168	216767	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	290603	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	108820	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4.	15.76	152	128487	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	106343	49.88	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	99.76%
62) toluene-d8 (s)	11.73	98	350674	51.20	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	102.40%
84) bromofluorobenzene (s)	14.42	95	110365	49.29	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	98.58%

Target Compounds

Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33855.D K042409S.M Mon Apr 27 10:09:37 2009 MSK

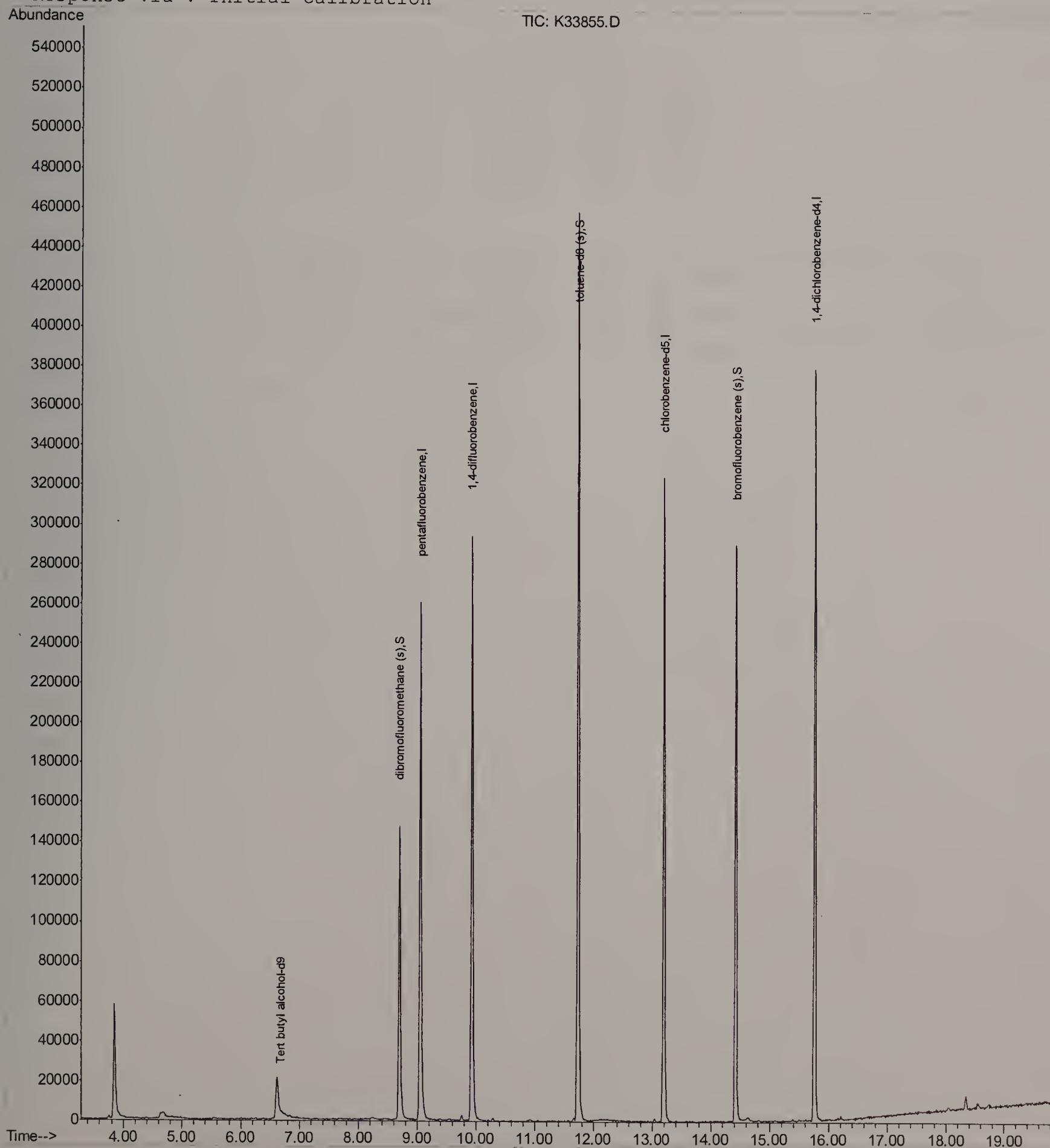
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33855.D
Acq On : 24 Apr 2009 6:44 pm
Sample : mb
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 10:09 2009

Vial: 14
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33890.D
Acq On : 27 Apr 2009 11:38 am
Sample : mb
Misc : ms18113,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:37:02 2009

Vial: 5
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.68	65	58307	500.00	ug/kg	0.02
4) pentafluorobenzene	9.06	168	212326	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	285816	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.20	82	107203	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	129381	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	100089	47.93	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	95.86%
62) toluene-d8 (s)	11.74	98	335191	49.76	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	99.52%
84) bromofluorobenzene (s)	14.42	95	108236	48.00	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	96.00%

Target Compounds

Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33890.D K042409S.M Mon Apr 27 12:37:43 2009 MSK

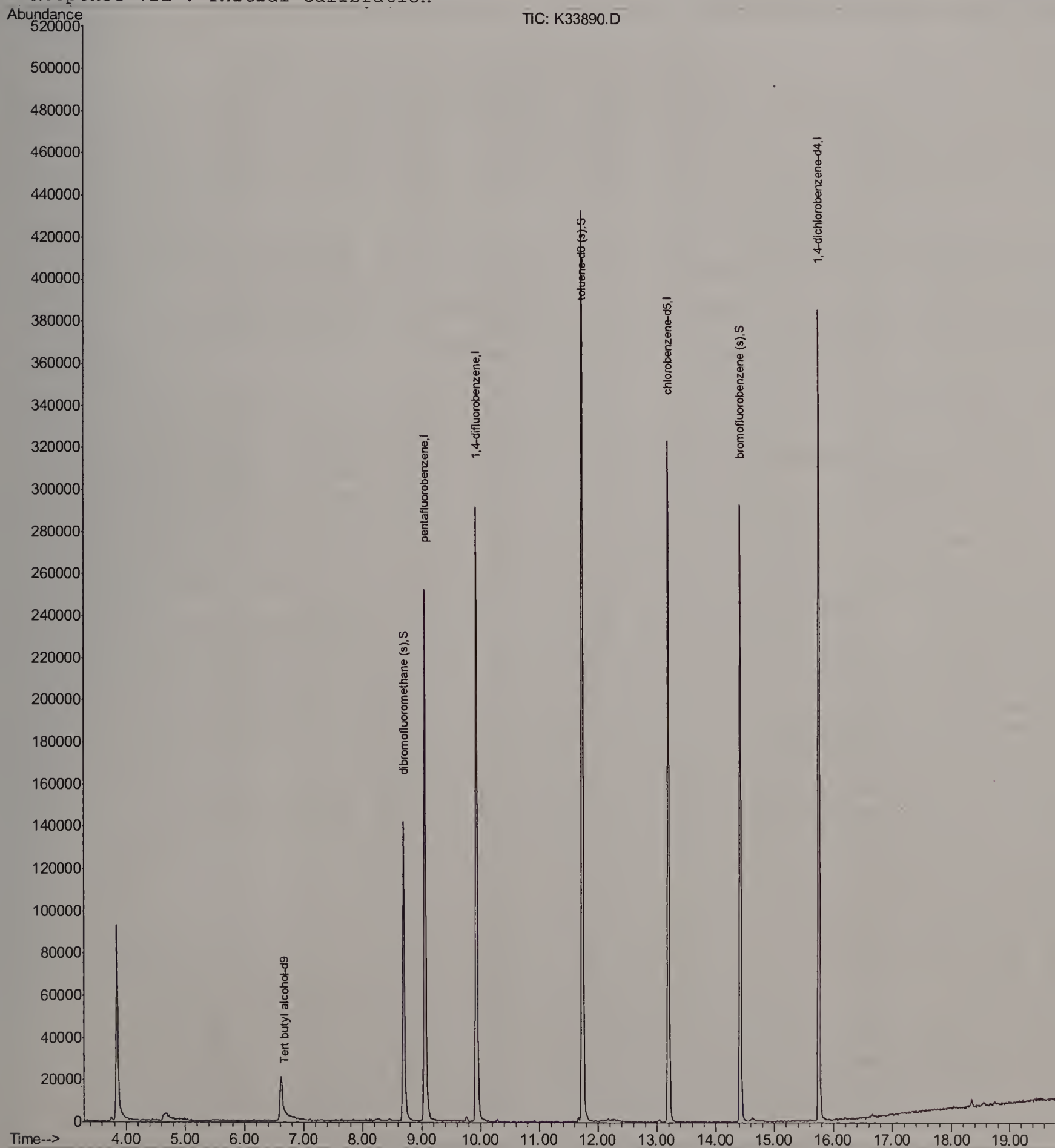
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33890.D
Acq On : 27 Apr 2009 11:38 am
Sample : mb
Misc : ms18113,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:37 2009

Vial: 5
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33851.D
Acq On : 24 Apr 2009 5:00 pm
Sample : icv1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 09:49:51 2009

Vial: 10
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	56962m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	220091	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	293048	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	116061	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	135102	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	107361	49.60	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	99.20%
62) toluene-d8 (s)	11.73	98	358685	51.93	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	103.86%
84) bromofluorobenzene (s)	14.42	95	118367	50.27	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	100.54%

Target Compounds

						Qvalue
2) tertiary butyl alcohol	6.72	59	72922	508.13	ug/kg	92
3) Ethanol	5.65	45	83472	4788.92	ug/kg#	100
5) dichlorodifluoromethane	4.35	85	62512	49.75	ug/kg	94
6) chloromethane	4.57	50	45641	45.28	ug/kg	98
7) vinyl chloride	4.83	62	34932	53.19	ug/kg	82
8) bromomethane	5.37	96	50536	50.28	ug/kg	90
9) chloroethane	5.50	64	45764	48.28	ug/kg	96
10) ethyl ether	6.35	59	79716	49.76	ug/kg	95
11) acetonitrile	6.13	41	31028m	49.47	ug/kg	
12) trichlorofluoromethane	6.18	101	135190m	50.96	ug/kg	
13) freon-113	6.95	101	73500	52.90	ug/kg	86
14) acrolein	6.11	56	83726	269.12	ug/kg	100
15) 1,1-dichloroethene	6.75	96	83242	49.49	ug/kg	90
16) acetone	6.25	43	28068	51.69	ug/kg	95
17) Methyl Acetate	6.90	43	137113	50.52	ug/kg#	95
18) methylene chloride	6.88	84	95110	47.49	ug/kg	86
19) methyl tert butyl ether	7.64	73	281540	49.01	ug/kg	99
20) acrylonitrile	6.76	53	184693	253.54	ug/kg	97
21) allyl chloride	6.97	41	122582	47.03	ug/kg	93
22) trans-1,2-dichloroethene	7.56	96	110680	48.68	ug/kg	90
23) iodomethane	6.81	142	162666	49.68	ug/kg	99
24) carbon disulfide	7.16	76	255848	48.95	ug/kg	97
25) propionitrile	7.85	54	12578	48.50	ug/kg	100
26) vinyl acetate	7.91	43	182100	51.54	ug/kg	99
27) chloroprene	8.17	53	148405	52.39	ug/kg	97
28) di-isopropyl ether	8.21	45	296588	49.33	ug/kg	96
29) methacrylonitrile	8.33	41	55955	50.41	ug/kg	94
30) 2-butanone	8.23	72	14294	49.54	ug/kg#	73
31) Hexane	8.19	41	122686	50.42	ug/kg	91
32) 1,1-dichloroethane	7.81	63	172580	50.05	ug/kg	98
33) tert-butyl ethyl ether	8.60	59	292003	50.79	ug/kg	98
34) isobutyl alcohol	8.63	43	44042	248.42	ug/kg	90
35) 2,2-dichloropropane	8.67	77	97770	49.53	ug/kg	100
36) cis-1,2-dichloroethene	8.37	96	116284	47.05	ug/kg	99
37) ethyl acetate	8.63	43	44042	50.42	ug/kg	80

(#)=qualifier out of range (m)=manual integration

K33851.D K042409S.M

Mon Apr 27 09:51:09 2009

MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33851.D
Acq On : 24 Apr 2009 5:00 pm
Sample : icv1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 09:49:51 2009

Vial: 10
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	64197	48.36	ug/kg	94
39) chloroform	8.58	83	181091	48.76	ug/kg	99
41) Tetrahydrofuran	8.91	42	26356	47.50	ug/kg	92
42) 1,1,1-trichloroethane	9.35	97	144030	51.54	ug/kg	94
43) n-Butyl Alcohol	9.34	TIC	365648	243.06	ug/L #	100
45) Cyclohexane	9.62	56	106902m	51.44	ug/kg	
46) carbon tetrachloride	9.71	117	136130	53.12	ug/kg	99
47) 1,1-dichloropropene	9.51	75	133631	51.30	ug/kg	98
48) benzene	9.73	78	399051	49.57	ug/kg	100
49) 1,2-dichloroethane	9.23	62	123401	49.68	ug/kg	94
50) tert-amyl methyl ether	9.85	73	279582	52.08	ug/kg	100
51) heptane	10.21	43	111505	51.35	ug/kg	96
52) 2-Nitropropane	10.33	TIC	1397531	51.38	ug/L #	100
53) trichloroethene	10.35	95	111593	50.49	ug/kg	98
54) 1,2-dichloropropane	10.32	63	95463	50.20	ug/kg	99
55) dibromomethane	10.29	93	60585	49.79	ug/kg	93
56) bromodichloromethane	10.41	83	129242	50.22	ug/kg	96
57) Methylcyclohexane	10.88	83	119753	53.22	ug/kg	97
58) 2-chloroethyl vinyl ether	10.78	63	3364	50.22	ug/kg#	100
59) methyl methacrylate	10.50	69	65721	53.20	ug/kg	96
60) 1,4-dioxane	10.52	88	3878	207.10	ug/kg#	100
61) cis-1,3-dichloropropene	11.02	75	149213	51.51	ug/kg	97
63) 4-methyl-2-pentanone	11.12	43	79295	50.51	ug/kg	99
64) toluene	11.80	92	239458	50.94	ug/kg	100
65) trans-1,3-dichloropropene	11.44	75	121631	50.44	ug/kg	98
66) 1,1,2-trichloroethane	11.62	83	72926	50.52	ug/kg	96
67) ethyl methacrylate	11.82	69	108741	56.00	ug/kg	92
69) tetrachloroethene	12.55	166	117432	49.85	ug/kg	98
70) 1,3-dichloropropane	11.85	76	137412	49.14	ug/kg	96
71) dibromochloromethane	12.15	129	102539	49.74	ug/kg	99
72) 1,2-dibromoethane	12.40	107	92804	48.99	ug/kg	98
73) 2-hexanone	11.98	43	57843	51.43	ug/kg	97
74) chlorobenzene	13.23	112	267161	48.26	ug/kg	99
75) 1,1,1,2-tetrachloroethane	13.14	131	104280	49.70	ug/kg	96
76) ethylbenzene	13.40	91	420034	50.47	ug/kg	100
77) m,p-xylene	13.59	106	346977	103.42	ug/kg	100
78) o-xylene	14.00	106	167641	50.89	ug/kg	100
79) styrene	13.93	104	261927	52.58	ug/kg	100
80) bromoform	13.75	173	66246	49.46	ug/kg	99
81) trans-1,4-dichloro-2-buten	14.15	53	24736	48.15	ug/kg#	88
83) isopropylbenzene	14.36	105	347521	52.59	ug/kg	100
85) bromobenzene	14.65	156	123521	50.78	ug/kg	99
86) 1,1,2,2-tetrachloroethane	14.00	83	101521	50.46	ug/kg	98
87) 1,2,3-trichloropropane	14.15	75	111701	50.22	ug/kg	97
88) n-propylbenzene	14.81	91	431648	52.11	ug/kg	99
89) 2-chlorotoluene	14.93	91	279312	51.04	ug/kg	99
90) 4-chlorotoluene	15.00	91	279847	51.70	ug/kg	99
91) 1,3,5-trimethylbenzene	15.08	105	327974	52.37	ug/kg	99
92) tert-butylbenzene	15.39	91	173563	52.03	ug/kg	98

(#)=qualifier out of range (m)=manual integration

K33851.D K042409S.M Mon Apr 27 09:51:10 2009 MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33851.D
Acq On : 24 Apr 2009 5:00 pm
Sample : icv1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 09:49:51 2009

Vial: 10
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	341520	53.22	ug/kg	99
94) sec-butylbenzene	15.61	105	406833	51.81	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	228216	50.22	ug/kg	97
96) p-isopropyltoluene	15.78	119	358704	50.88	ug/kg	98
97) 1,4-dichlorobenzene	15.78	146	235272	49.38	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	232003	50.82	ug/kg	97
99) n-butylbenzene	16.20	91	308267	52.50	ug/kg	100
100) 1,2-dibromo-3-chloropropan	16.63	75	14404	48.71	ug/kg	95
101) 1,2,4-trichlorobenzene	18.03	180	120612	52.53	ug/kg	97
102) hexachlorobutadiene	18.34	225	69690	54.31	ug/kg	96
103) naphthalene	18.32	128	257635	49.61	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	88413	49.91	ug/kg	100

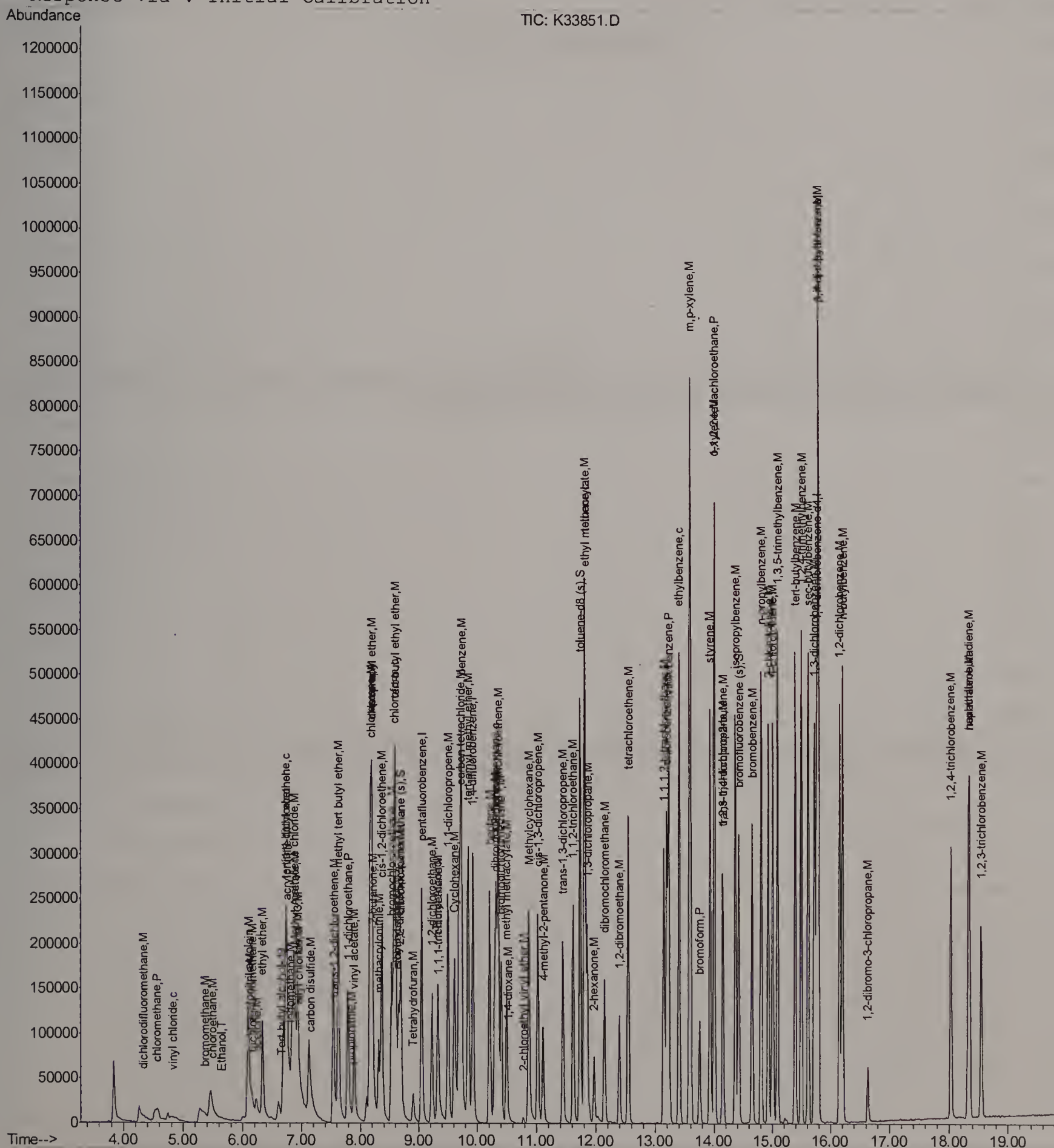
(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33851.D K042409S.M Mon Apr 27 09:51:10 2009 MSK

(QT Reviewed)

Vial: 10
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

```
Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Mon Apr 27 09:11:43 2009
Response via  : Initial Calibration
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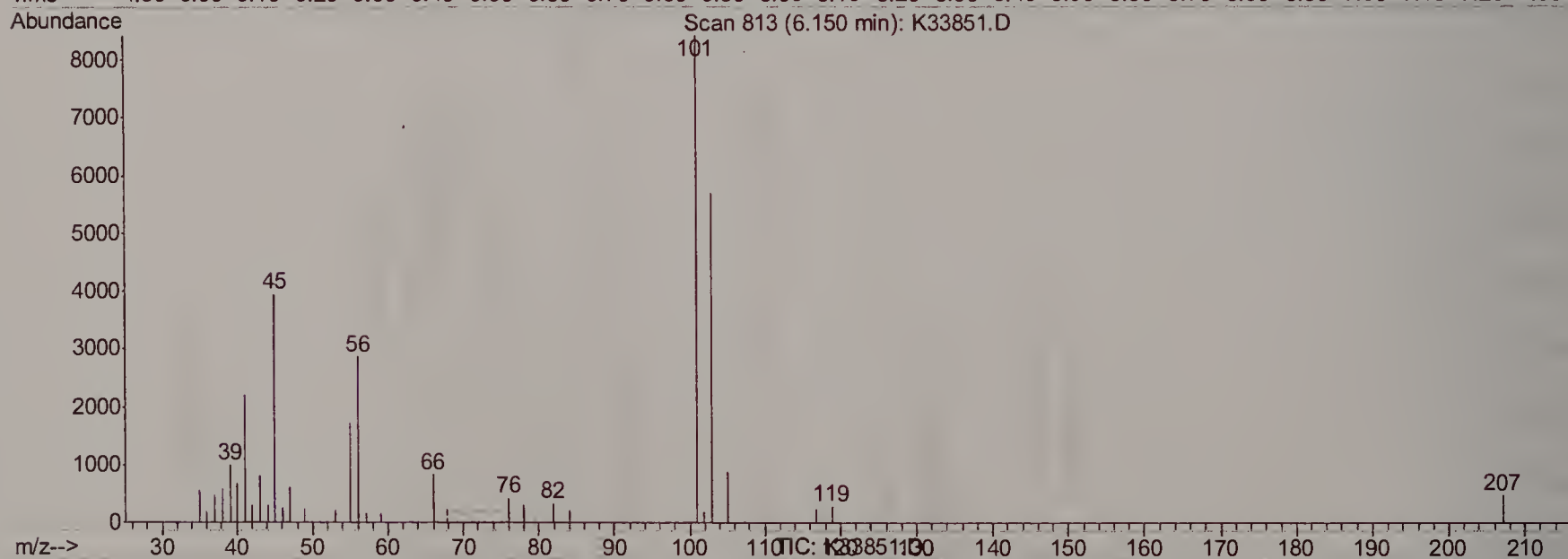
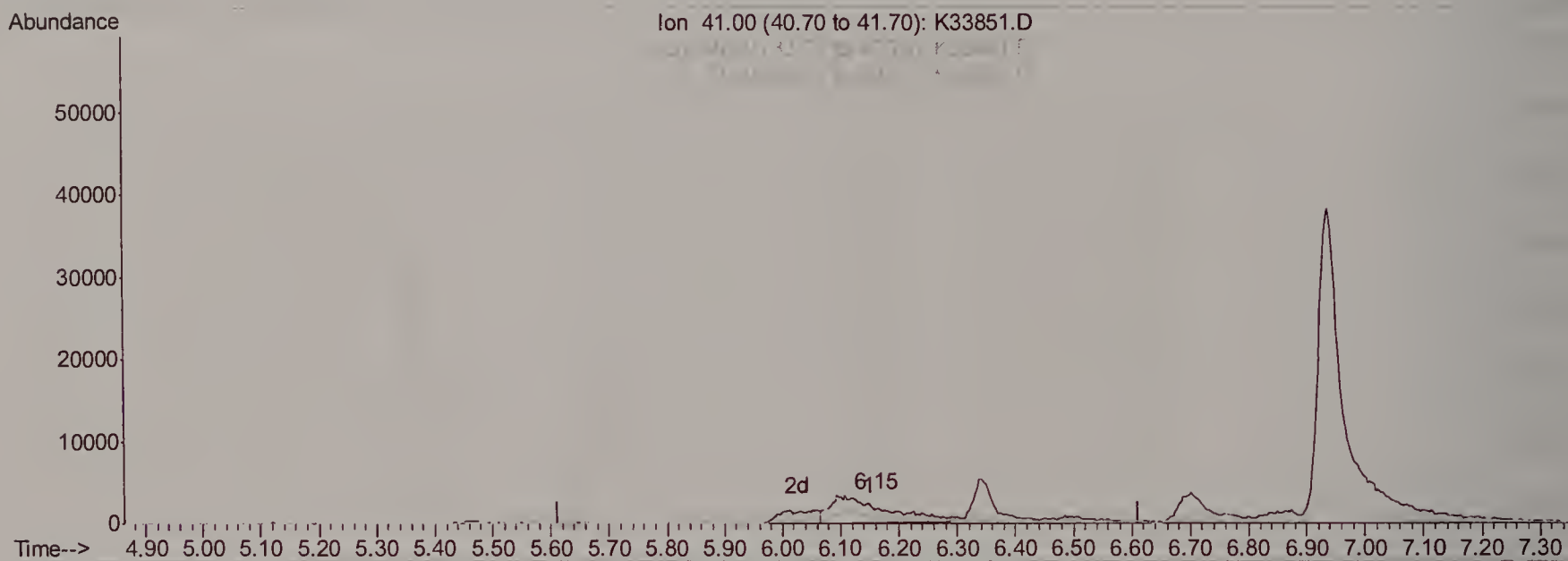
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33851.D
Acq On : 24 Apr 2009 5:00 pm
Sample : icv1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 9:49 2009

Vial: 10
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.15min 34.26ug/kg

response 21707

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	28.07
39.00	58.00	40.49
0.00	0.00	0.00

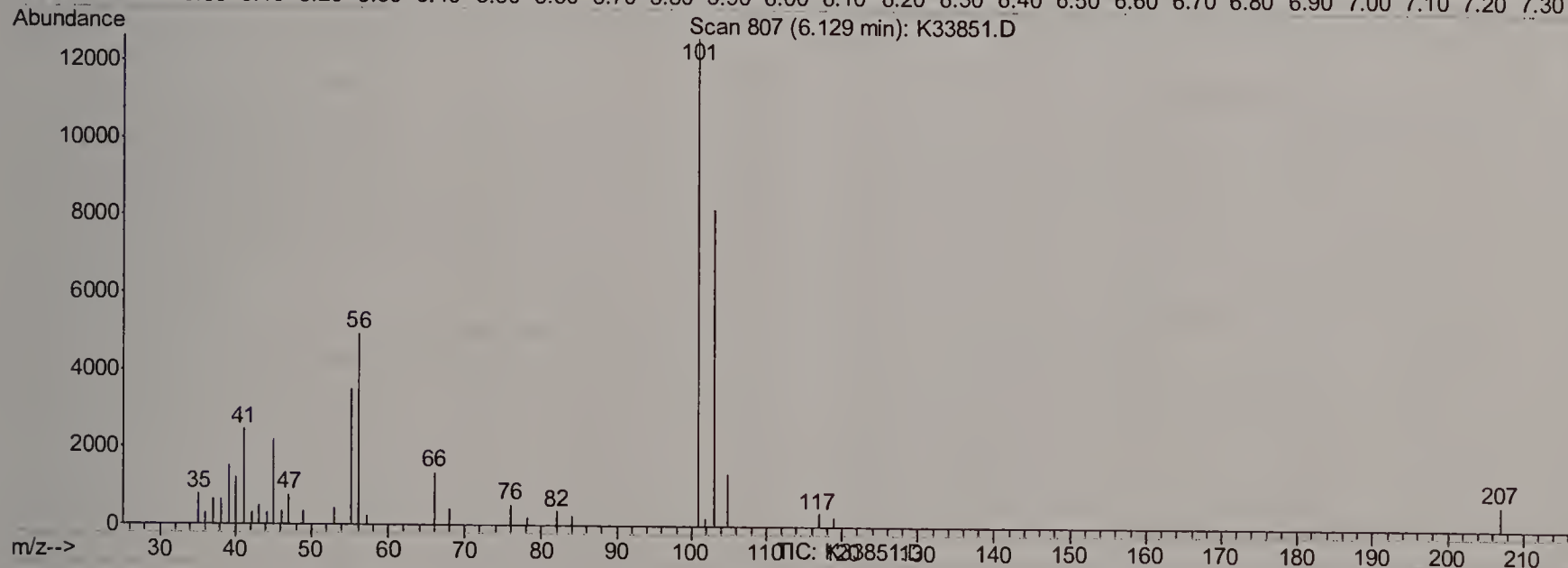
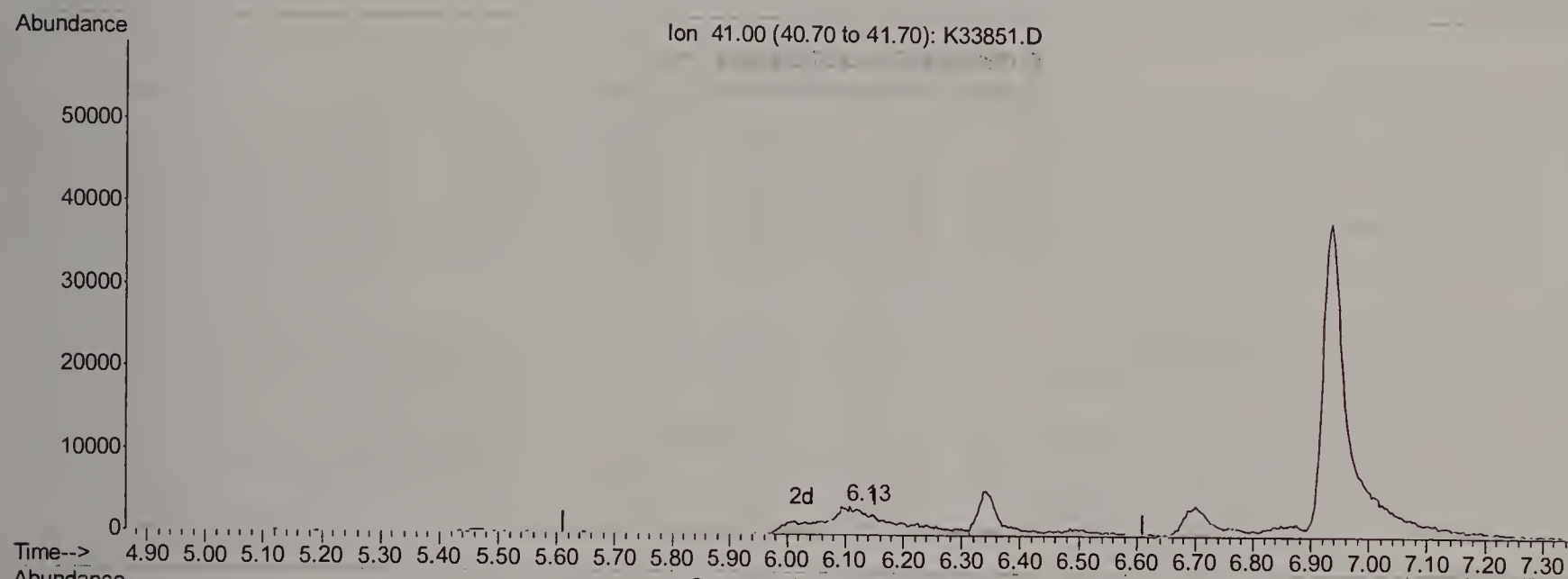
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33851.D
Acq On : 24 Apr 2009 5:00 pm
Sample : icv1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 9:50 2009

Vial: 10
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 49.47ug/kg m

response 31028

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	50.00
39.00	58.00	62.60
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33852.D
 Acq On : 24 Apr 2009 5:26 pm
 Sample : bsd
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 09:54:16 2009

Vial: 11
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	57231m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	218350	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	292052	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	116154	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	133730	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	104692	48.75	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	97.50%
62) toluene-d8 (s)	11.73	98	347954	50.55	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	101.10%
84) bromofluorobenzene (s)	14.42	95	115497	49.56	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	99.12%

Target Compounds

						Qvalue
2) tertiary butyl alcohol	6.72	59	72078	499.88	ug/kg	95
3) Ethanol	5.64	45	86115	4917.33	ug/kg#	100
5) dichlorodifluoromethane	4.35	85	60034	48.16	ug/kg	94
6) chloromethane	4.57	50	43092	43.09	ug/kg	99
7) vinyl chloride	4.84	62	31760	48.75	ug/kg	97
8) bromomethane	5.37	96	48941	49.03	ug/kg	92
9) chloroethane	5.51	64	45483	48.37	ug/kg	92
10) ethyl ether	6.35	59	79083	49.76	ug/kg	98
11) acetonitrile	6.13	41	30774m	49.45	ug/kg	
12) trichlorofluoromethane	6.18	101	130404m	49.55	ug/kg	
13) freon-113	6.92	101	61780	44.82	ug/kg	95
14) acrolein	6.11	56	82915	268.64	ug/kg	100
15) 1,1-dichloroethene	6.74	96	77268m	46.31	ug/kg	
16) acetone	6.25	43	23916	44.39	ug/kg	92
17) Methyl Acetate	6.89	43	129377	48.05	ug/kg	99
18) methylene chloride	6.88	84	92562	46.59	ug/kg	100
19) methyl tert butyl ether	7.64	73	276043	48.44	ug/kg	98
20) acrylonitrile	6.76	53	182087	251.96	ug/kg	99
21) allyl chloride	6.97	41	124196	48.03	ug/kg	93
22) trans-1,2-dichloroethene	7.56	96	107444	47.63	ug/kg	91
23) iodomethane	6.81	142	156386	48.14	ug/kg	93
24) carbon disulfide	7.16	76	247720	47.77	ug/kg	100
25) propionitrile	7.85	54	12472	48.47	ug/kg	100
26) vinyl acetate	7.91	43	179541	51.22	ug/kg	99
27) chloroprene	8.17	53	141796	50.46	ug/kg	95
28) di-isopropyl ether	8.21	45	290060	48.63	ug/kg	95
29) methacrylonitrile	8.33	41	55256	50.18	ug/kg	92
30) 2-butanone	8.23	72	13160	45.79	ug/kg	92
31) Hexane	8.19	41	119429	49.47	ug/kg	91
32) 1,1-dichloroethane	7.80	63	161879	47.32	ug/kg	97
33) tert-butyl ethyl ether	8.60	59	287412	50.39	ug/kg	98
34) isobutyl alcohol	8.63	43	42002	238.81	ug/kg	87
35) 2,2-dichloropropane	8.67	77	91519	46.73	ug/kg	97
36) cis-1,2-dichloroethene	8.37	96	113946	46.48	ug/kg	99
37) ethyl acetate	8.63	43	43812	50.56	ug/kg	75

(#) = qualifier out of range (m) = manual integration

K33852.D K042409S.M

Mon Apr 27 09:55:24 2009

MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33852.D
 Acq On : 24 Apr 2009 5:26 pm
 Sample : bsd
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 09:54:16 2009

Vial: 11
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	63240	48.02	ug/kg	98
39) chloroform	8.58	83	175234	47.56	ug/kg	97
41) Tetrahydrofuran	8.92	42	26934	48.93	ug/kg	91
42) 1,1,1-trichloroethane	9.35	97	140635	50.73	ug/kg	96
43) n-Butyl Alcohol	9.34	TIC	350924	235.13	ug/L #	100
45) Cyclohexane	9.62	56	100735m	48.64	ug/kg	
46) carbon tetrachloride	9.71	117	130242	50.99	ug/kg	96
47) 1,1-dichloropropene	9.51	75	128676	49.57	ug/kg	98
48) benzene	9.73	78	384008	47.87	ug/kg	97
49) 1,2-dichloroethane	9.23	62	120633	48.73	ug/kg	96
50) tert-amyl methyl ether	9.85	73	273084	51.05	ug/kg	99
51) heptane	10.21	43	106549	49.24	ug/kg	98
52) 2-Nitropropane	10.33	TIC	1353533	49.83	ug/L #	100
53) trichloroethene	10.35	95	107632	48.86	ug/kg	99
54) 1,2-dichloropropane	10.32	63	93379	49.27	ug/kg	99
55) dibromomethane	10.29	93	59935	49.42	ug/kg	95
56) bromodichloromethane	10.41	83	125575	48.96	ug/kg	97
57) Methylcyclohexane	10.88	83	114620	51.11	ug/kg	96
58) 2-chloroethyl vinyl ether	10.78	63	3025	45.94	ug/kg#	100
59) methyl methacrylate	10.50	69	65036	52.83	ug/kg	99
60) 1,4-dioxane	10.53	88	4818	255.84	ug/kg#	100
61) cis-1,3-dichloropropene	11.02	75	145007	50.23	ug/kg	98
63) 4-methyl-2-pentanone	11.12	43	78291	50.04	ug/kg	99
64) toluene	11.81	92	231807	49.48	ug/kg	97
65) trans-1,3-dichloropropene	11.44	75	120262	50.04	ug/kg	96
66) 1,1,2-trichloroethane	11.62	83	72298	50.26	ug/kg	95
67) ethyl methacrylate	11.82	69	103026	53.24	ug/kg	88
69) tetrachloroethene	12.55	166	114075	48.38	ug/kg	97
70) 1,3-dichloropropane	11.85	76	136100	48.63	ug/kg	98
71) dibromochloromethane	12.15	129	101629	49.26	ug/kg	96
72) 1,2-dibromoethane	12.40	107	92688	48.89	ug/kg	99
73) 2-hexanone	11.98	43	54180	48.13	ug/kg	98
74) chlorobenzene	13.23	112	263255	47.52	ug/kg	97
75) 1,1,1,2-tetrachloroethane	13.14	131	102208	48.67	ug/kg	98
76) ethylbenzene	13.40	91	408088	48.99	ug/kg	99
77) m,p-xylene	13.59	106	336830	100.32	ug/kg	98
78) o-xylene	14.00	106	163968	49.74	ug/kg	98
79) styrene	13.93	104	254936	51.14	ug/kg	98
80) bromoform	13.75	173	64712	48.28	ug/kg	98
81) trans-1,4-dichloro-2-buten	14.15	53	24199	47.07	ug/kg	91
83) isopropylbenzene	14.36	105	337280	51.57	ug/kg	98
85) bromobenzene	14.65	156	119847	49.77	ug/kg	98
86) 1,1,2,2-tetrachloroethane	14.00	83	100519	50.47	ug/kg	96
87) 1,2,3-trichloropropane	14.15	75	111325	50.56	ug/kg	97
88) n-propylbenzene	14.81	91	419496	51.16	ug/kg	98
89) 2-chlorotoluene	14.93	91	269975	49.84	ug/kg	100
90) 4-chlorotoluene	15.00	91	272992	50.95	ug/kg	100
91) 1,3,5-trimethylbenzene	15.08	105	317393	51.20	ug/kg	98
92) tert-butylbenzene	15.39	91	167039	50.59	ug/kg	98

(#) = qualifier out of range (m) = manual integration

K33852.D K042409S.M

Mon Apr 27 09:55:24 2009

MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33852.D
Acq On : 24 Apr 2009 5:26 pm
Sample : bsd
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 09:54:16 2009

Vial: 11
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

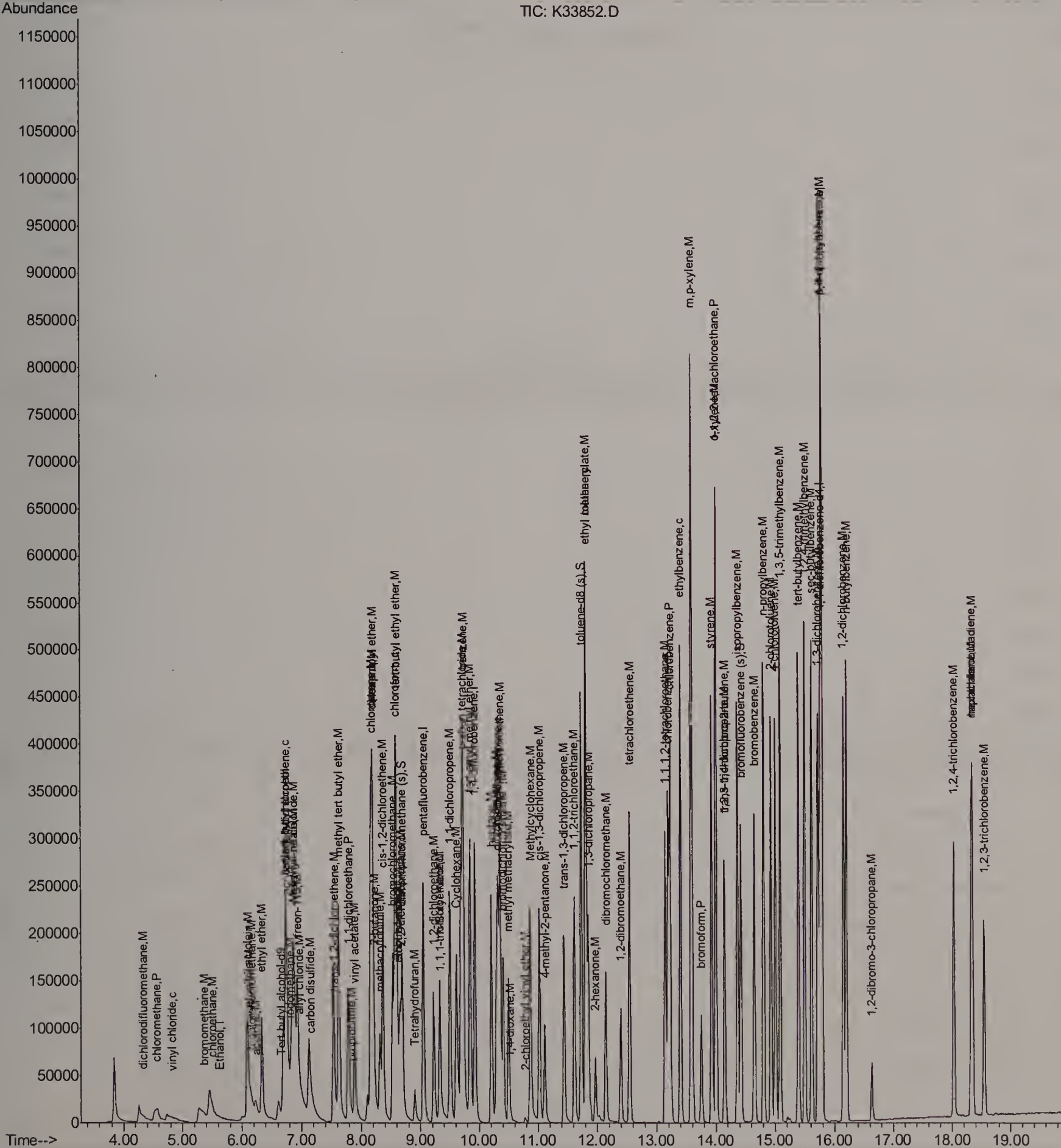
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	327956	51.63	ug/kg	99
94) sec-butylbenzene	15.61	105	391420	50.36	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	220644	49.05	ug/kg	98
96) p-isopropyltoluene	15.78	119	346704	49.68	ug/kg	99
97) 1,4-dichlorobenzene	15.78	146	229549	48.67	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	225478	49.89	ug/kg	99
99) n-butylbenzene	16.20	91	296259	50.97	ug/kg	98
100) 1,2-dibromo-3-chloropropan	16.63	75	14255	48.70	ug/kg	90
101) 1,2,4-trichlorobenzene	18.03	180	116405	51.21	ug/kg	100
102) hexachlorobutadiene	18.34	225	65803	51.63	ug/kg	95
103) naphthalene	18.32	128	252963	49.21	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	85765	48.92	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33852.D K042409S.M Mon Apr 27 09:55:24 2009 MSK

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33852.D Vial: 11
Acq On : 24 Apr 2009 5:26 pm Operator: RobertT
Sample : bsd Inst : gcms k
Misc : ms18077,msk1192,10,,100,10,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 27 9:55 2009 Quant Results File: K042409S.RES

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration



6.3.2
6

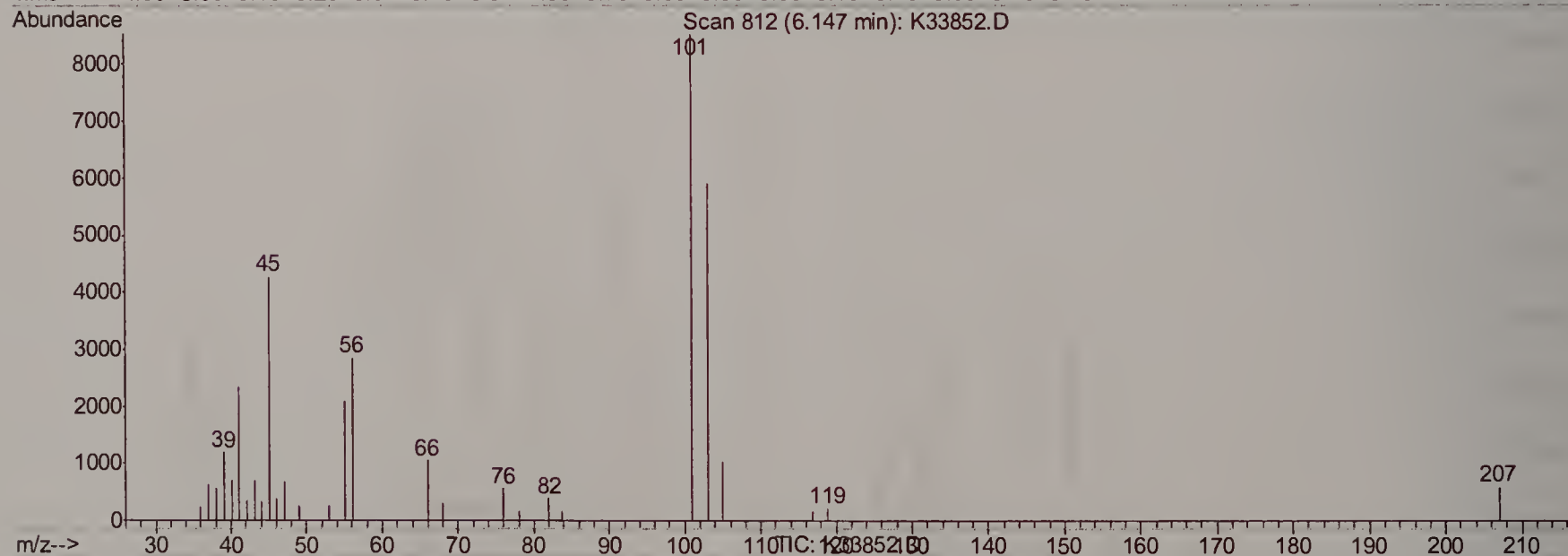
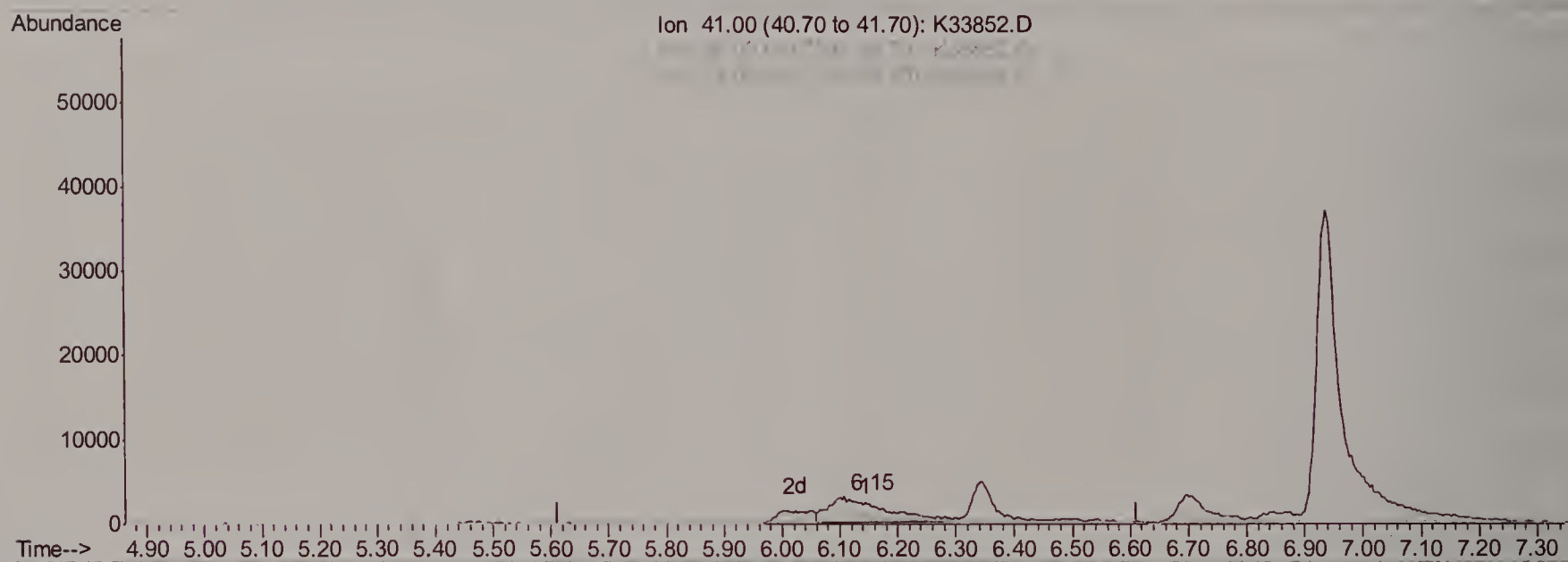
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33852.D
Acq On : 24 Apr 2009 5:26 pm
Sample : bsd
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 9:54 2009

Vial: 11
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.15min 33.21ug/kg

response 20895

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	26.16
39.00	58.00	42.60
0.00	0.00	0.00

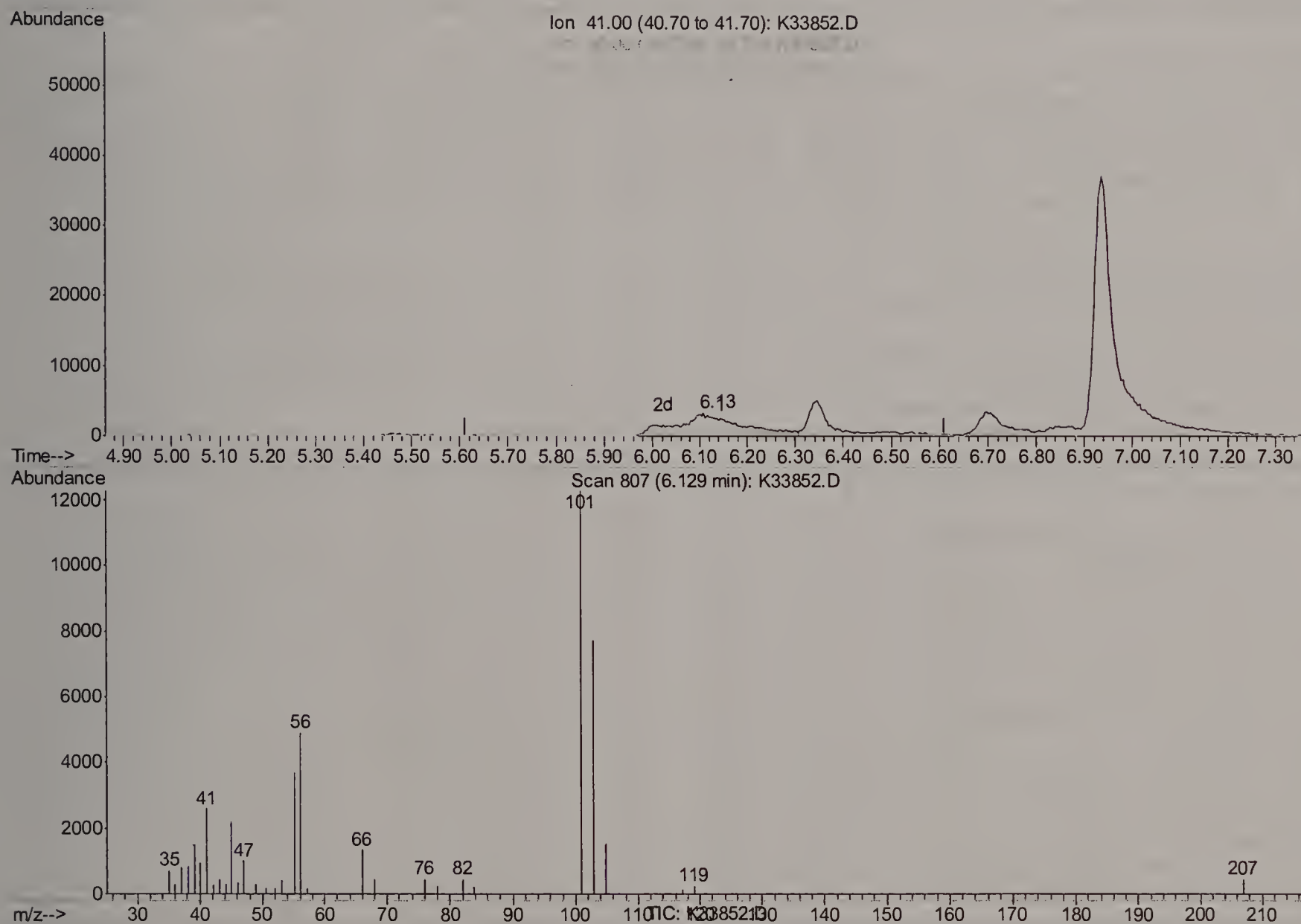
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33852.D
Acq On : 24 Apr 2009 5:26 pm
Sample : bsd
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 9:54 2009

Vial: 11
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 49.45ug/kg m

response 30774

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	36.12
39.00	58.00	57.53
0.00	0.00	0.00

Doug Yargeau
04/27/09 13:58

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33887.D
Acq On : 27 Apr 2009 10:20 am
Sample : bs
Misc : ms18104,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:33:17 2009

Vial: 2
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	49262m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	215145	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	286510	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	116750	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	138648	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	102828	48.59	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	97.18%
62) toluene-d8 (s)	11.73	98	346426	51.30	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	102.60%
84) bromofluorobenzene (s)	14.42	95	118783	49.16	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	98.32%

Target Compounds

					Qvalue
2) tertiary butyl alcohol	6.72	59	69171	557.33	ug/kg 90
3) Ethanol	5.64	45	78948	5237.34	ug/kg# 100
5) dichlorodifluoromethane	4.35	85	40706	33.14	ug/kg 97
6) chloromethane	4.57	50	33490	33.99	ug/kg 87
7) vinyl chloride	4.83	62	29298	45.64	ug/kg 97
8) bromomethane	5.37	96	39290m	39.59	ug/kg
9) chloroethane	5.51	64	37926m	40.93	ug/kg
10) ethyl ether	6.36	59	74049	47.28	ug/kg 100
11) acetonitrile	6.14	41	30317m	49.44	ug/kg
12) trichlorofluoromethane	6.19	101	107350m	41.40	ug/kg
13) freon-113	6.96	101	66426	48.91	ug/kg 82
14) acrolein	6.11	56	62707	206.20	ug/kg 100
15) 1,1-dichloroethene	6.75	96	75215	45.75	ug/kg 98
16) acetone	6.25	43	23978	45.17	ug/kg 86
17) Methyl Acetate	6.90	43	110623	41.69	ug/kg# 90
18) methylene chloride	6.88	84	92569	47.28	ug/kg 93
19) methyl tert butyl ether	7.64	73	275330	49.03	ug/kg 100
20) acrylonitrile	6.76	53	171651	241.06	ug/kg 98
21) allyl chloride	6.97	41	119994	47.09	ug/kg 89
22) trans-1,2-dichloroethene	7.57	96	106324	47.84	ug/kg 93
23) iodomethane	6.80	142	142223m	44.44	ug/kg
24) carbon disulfide	7.16	76	213391	41.76	ug/kg 98
25) propionitrile	7.85	54	12109	47.78	ug/kg 100
26) vinyl acetate	7.91	43	172617	49.98	ug/kg 99
27) chloroprene	8.17	53	142586	51.50	ug/kg 99
28) di-isopropyl ether	8.21	45	297739	50.66	ug/kg 99
29) methacrylonitrile	8.33	41	52923	48.77	ug/kg 93
30) 2-butanone	8.23	72	12523	44.13	ug/kg# 78
31) Hexane	8.19	41	111592	46.91	ug/kg# 82
32) 1,1-dichloroethane	7.81	63	163413	48.48	ug/kg 99
33) tert-butyl ethyl ether	8.60	59	300684	53.50	ug/kg 98
34) isobutyl alcohol	8.63	43	43764	252.53	ug/kg 96
35) 2,2-dichloropropane	8.67	77	97996	50.79	ug/kg 95
36) cis-1,2-dichloroethene	8.38	96	117152	48.50	ug/kg 95
37) ethyl acetate	8.63	43	47001	55.05	ug/kg 90

(#)=qualifier out of range (m)=manual integration

K33887.D K042409S.M

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MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33887.D
Acq On : 27 Apr 2009 10:20 am
Sample : bs
Misc : ms18104,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:33:17 2009

Vial: 2
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	62857	48.44	ug/kg	97
39) chloroform	8.58	83	182663	50.32	ug/kg	98
41) Tetrahydrofuran	8.92	42	24963	46.02	ug/kg	86
42) 1,1,1-trichloroethane	9.35	97	144351	52.85	ug/kg	97
43) n-Butyl Alcohol	9.34	TIC	365645	248.65	ug/L #	100
45) Cyclohexane	9.62	56	98902m	48.68	ug/kg	
46) carbon tetrachloride	9.71	117	132647	52.94	ug/kg	100
47) 1,1-dichloropropene	9.51	75	124438	48.86	ug/kg	97
48) benzene	9.74	78	379877	48.27	ug/kg	100
49) 1,2-dichloroethane	9.23	62	120909	49.79	ug/kg	94
50) tert-amyl methyl ether	9.85	73	282246	53.78	ug/kg	99
51) heptane	10.21	43	102675	48.37	ug/kg	98
52) 2-Nitropropane	10.33	TIC	1397930m	52.65	ug/L	
53) trichloroethene	10.36	95	110118	50.96	ug/kg	97
54) 1,2-dichloropropane	10.32	63	96314	51.80	ug/kg	100
55) dibromomethane	10.30	93	61016	51.29	ug/kg	93
56) bromodichloromethane	10.41	83	137736	54.74	ug/kg	97
57) Methylcyclohexane	10.88	83	114519	52.06	ug/kg	93
58) 2-chloroethyl vinyl ether	10.78	63	1910	31.87	ug/kg#	100
59) methyl methacrylate	10.50	69	63812	52.84	ug/kg	94
60) 1,4-dioxane	10.54	88	4488	243.41	ug/kg#	100
61) cis-1,3-dichloropropene	11.03	75	148178	52.32	ug/kg	98
63) 4-methyl-2-pentanone	11.12	43	80073	52.17	ug/kg	99
64) toluene	11.81	92	245139	53.33	ug/kg	97
65) trans-1,3-dichloropropene	11.45	75	123132	52.23	ug/kg	99
66) 1,1,2-trichloroethane	11.62	83	73890	52.36	ug/kg	96
67) ethyl methacrylate	11.82	69	114382	60.25	ug/kg	90
69) tetrachloroethene	12.55	166	117935	49.77	ug/kg	99
70) 1,3-dichloropropane	11.85	76	140142	49.82	ug/kg	98
71) dibromochloromethane	12.15	129	112282	54.15	ug/kg	99
72) 1,2-dibromoethane	12.40	107	95214	49.97	ug/kg	99
73) 2-hexanone	11.98	43	54886	48.51	ug/kg	98
74) chlorobenzene	13.23	112	283414	50.90	ug/kg	98
75) 1,1,1,2-tetrachloroethane	13.15	131	107986	51.16	ug/kg	99
76) ethylbenzene	13.40	91	429594	51.31	ug/kg	99
77) m,p-xylene	13.59	106	354965	105.18	ug/kg	100
78) o-xylene	14.00	106	171341	51.71	ug/kg	97
79) styrene	13.93	104	274583	54.80	ug/kg	99
80) bromoform	13.75	173	69449	51.55	ug/kg	99
81) trans-1,4-dichloro-2-buten	14.15	53	26982	52.21	ug/kg	95
83) isopropylbenzene	14.36	105	378290	55.78	ug/kg	100
85) bromobenzene	14.65	156	129429	51.84	ug/kg	98
86) 1,1,2,2-tetrachloroethane	14.00	83	104791	50.75	ug/kg	96
87) 1,2,3-trichloropropane	14.15	75	118183	51.78	ug/kg	99
88) n-propylbenzene	14.81	91	456477	53.70	ug/kg	100
89) 2-chlorotoluene	14.93	91	289951	51.63	ug/kg	99
90) 4-chlorotoluene	15.00	91	294618	53.04	ug/kg	99
91) 1,3,5-trimethylbenzene	15.08	105	345367	53.73	ug/kg	100
92) tert-butylbenzene	15.39	91	182563	53.33	ug/kg	96

(#) = qualifier out of range (m) = manual integration

K33887.D K042409S.M

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MSK

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Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33887.D
Acq On : 27 Apr 2009 10:20 am
Sample : bs
Misc : ms18104,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:33:17 2009

Vial: 2
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	363927	55.26	ug/kg	97
94) sec-butylbenzene	15.61	105	430827	53.47	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	237186	50.86	ug/kg	99
96) p-isopropyltoluene	15.78	119	384336	53.12	ug/kg	99
97) 1,4-dichlorobenzene	15.78	146	247531	50.62	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	243386	51.95	ug/kg	99
99) n-butylbenzene	16.20	91	323974	53.76	ug/kg	99
100) 1,2-dibromo-3-chloropropan	16.63	75	15099	49.76	ug/kg	93
101) 1,2,4-trichlorobenzene	18.03	180	130382	55.33	ug/kg	99
102) hexachlorobutadiene	18.34	225	72433	55.05	ug/kg	98
103) naphthalene	18.32	128	281515	52.82	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	98422	54.14	ug/kg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33887.D K042409S.M Mon Apr 27 12:34:49 2009 MSK

Quantitation Report (QT Reviewed)

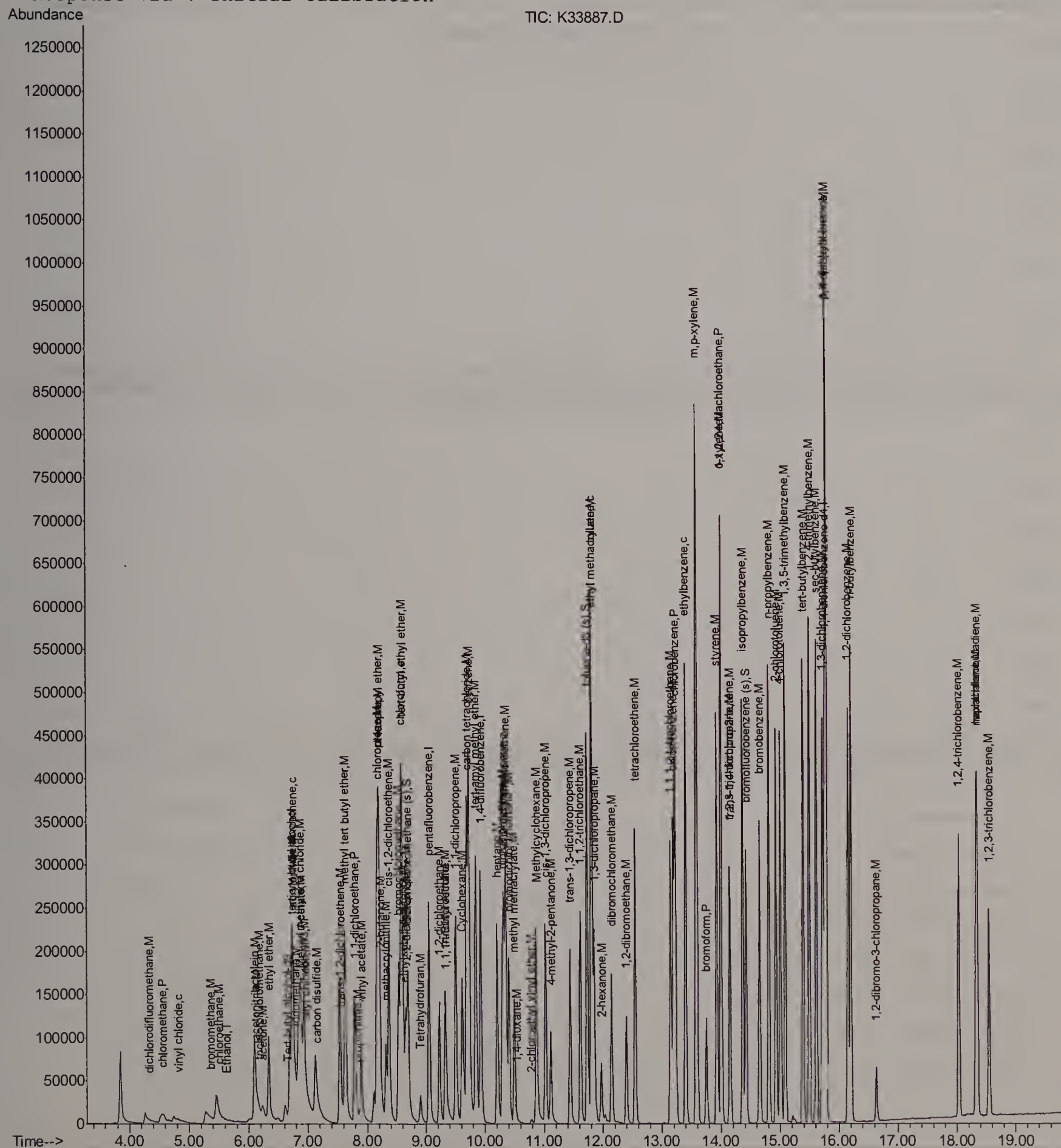
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      Vial: 2
Operator: RobertT
Inst      : gcms k
Multiplr: 1.00

ults File: K042409S.RES

```

```
Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Mon Apr 27 09:11:43 2009
Response via  : Initial Calibration
```



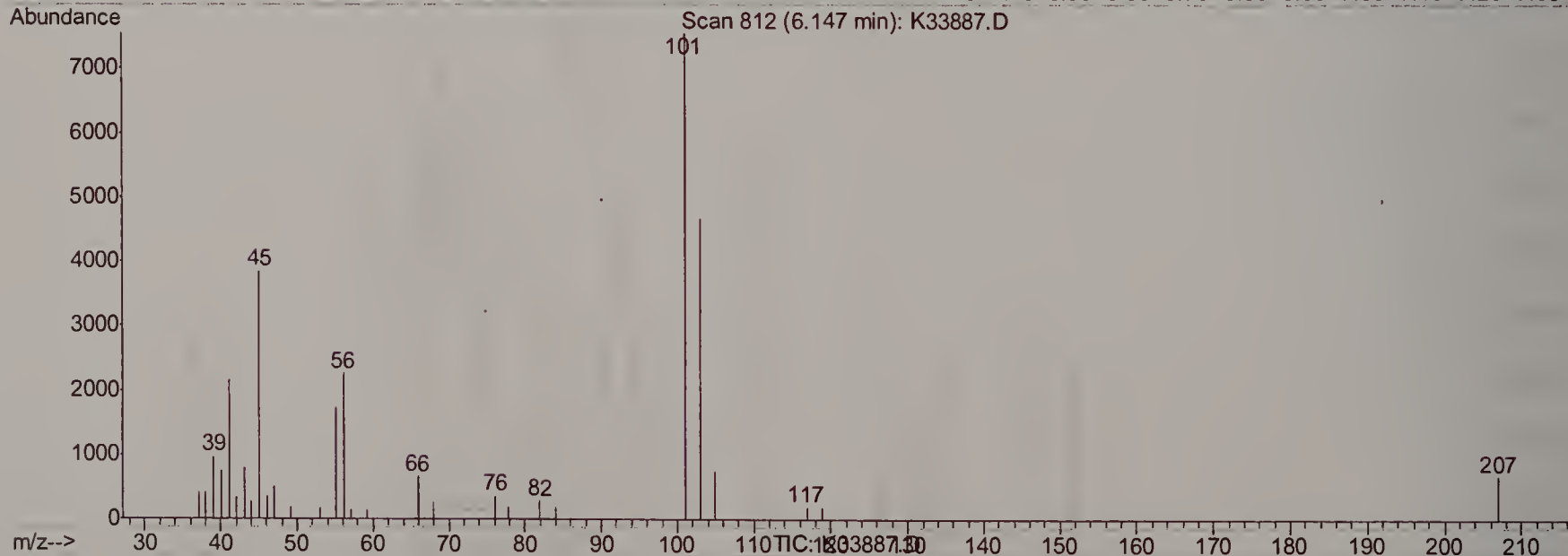
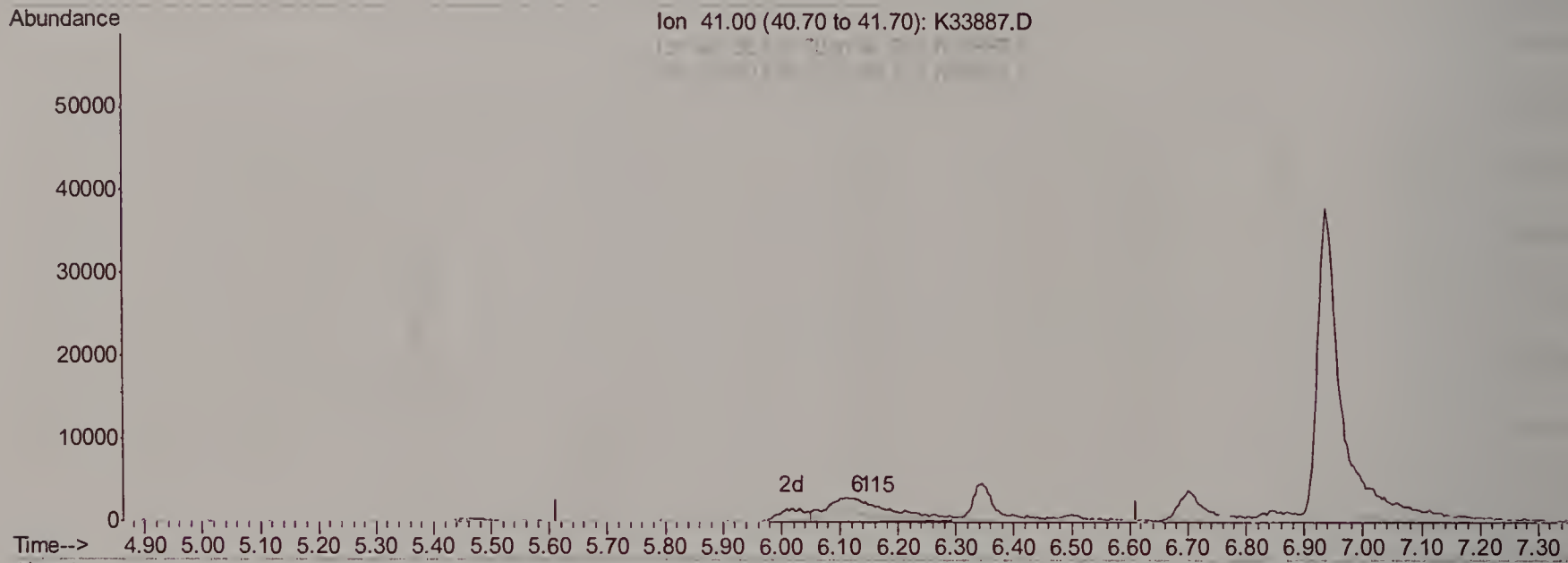
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33887.D
 Acq On : 27 Apr 2009 10:20 am
 Sample : bs
 Misc : ms18104,msk1193,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 12:33 2009

Vial: 2
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.15min 35.65ug/kg

response 22054

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	34.95
39.00	58.00	34.34
0.00	0.00	0.00

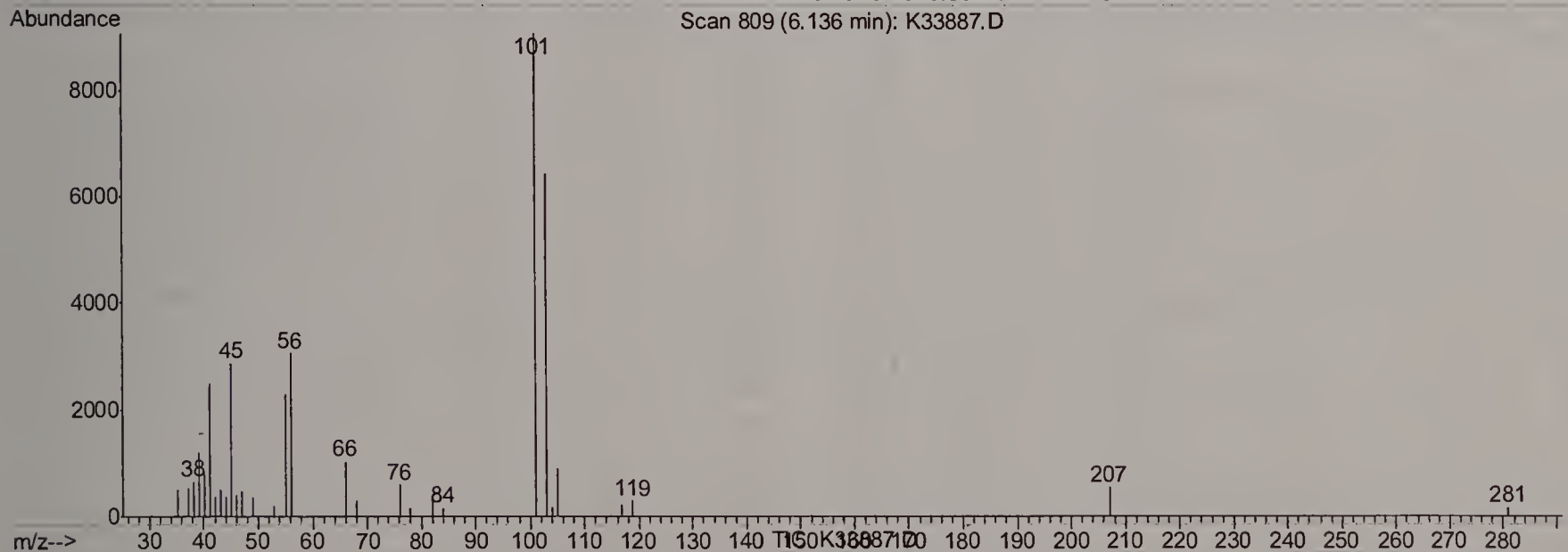
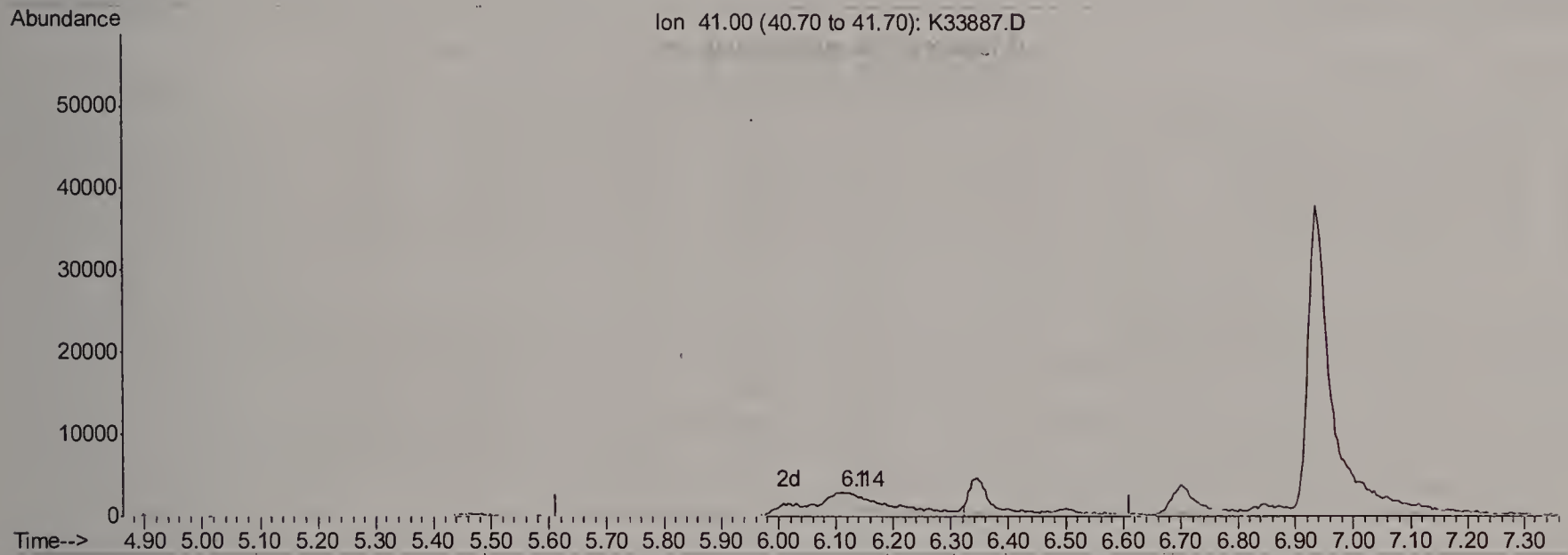
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33887.D
Acq On : 27 Apr 2009 10:20 am
Sample : bs
Misc : ms18104,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:33 2009

Vial: 2
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetone nitrile (M)

6.14min 49.44ug/kg m

response 30317

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	32.61
39.00	58.00	47.91
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33888.D
Acq On : 27 Apr 2009 10:46 am
Sample : bsd
Misc : ms18104,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:35:13 2009

Vial: 3
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	50297m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	217535	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	290761	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	115551	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	138942	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	101543	47.46	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	94.92%
62) toluene-d8 (s)	11.73	98	336957	49.17	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	98.34%
84) bromofluorobenzene (s)	14.42	95	113233	46.77	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	93.54%

Target Compounds

						Qvalue
2) tertiary butyl alcohol	6.72	59	71409	563.52	ug/kg	91
3) Ethanol	5.62	45	77207	5016.45	ug/kg#	100
5) dichlorodifluoromethane	4.35	85	38741	31.19	ug/kg	94
6) chloromethane	4.57	50	29848	29.96	ug/kg	86
7) vinyl chloride	4.84	62	27823	42.86	ug/kg	83
8) bromomethane	5.37	96	37006	36.75	ug/kg	87
9) chloroethane	5.52	64	36740	39.22	ug/kg	95
10) ethyl ether	6.36	59	74154	46.83	ug/kg	92
11) acetonitrile	6.14	41	28600m	46.05	ug/kg	
12) trichlorofluoromethane	6.19	101	102093m	38.94	ug/kg	
13) freon-113	6.97	101	65285m	47.54	ug/kg	
14) acrolein	6.11	56	68210	221.83	ug/kg	100
15) 1,1-dichloroethene	6.76	96	72811	43.80	ug/kg	97
16) acetone	6.25	43	19543	36.41	ug/kg	83
17) Methyl Acetate	6.90	43	112122	41.79	ug/kg#	92
18) methylene chloride	6.88	84	90911	45.93	ug/kg	96
19) methyl tert butyl ether	7.64	73	278549	49.06	ug/kg	99
20) acrylonitrile	6.76	53	174899	242.92	ug/kg	100
21) allyl chloride	6.97	41	110108	42.74	ug/kg	86
22) trans-1,2-dichloroethene	7.57	96	102185	45.47	ug/kg	95
23) iodomethane	6.81	142	138359	42.75	ug/kg	97
24) carbon disulfide	7.17	76	204398	39.56	ug/kg	99
25) propionitrile	7.85	54	12351	48.19	ug/kg	100
26) vinyl acetate	7.91	43	175000	50.12	ug/kg	99
27) chloroprene	8.17	53	140524	50.19	ug/kg	100
28) di-isopropyl ether	8.21	45	299650	50.42	ug/kg	99
29) methacrylonitrile	8.33	41	53981	49.20	ug/kg	97
30) 2-butanone	8.23	72	12788	44.60	ug/kg	94
31) Hexane	8.19	41	105295	43.78	ug/kg#	85
32) 1,1-dichloroethane	7.81	63	161530	47.40	ug/kg	96
33) tert-butyl ethyl ether	8.60	59	298919	52.60	ug/kg	96
34) isobutyl alcohol	8.62	43	42639	243.34	ug/kg	96
35) 2,2-dichloropropane	8.67	77	94972	48.68	ug/kg	100
36) cis-1,2-dichloroethene	8.38	96	114817	47.01	ug/kg	99
37) ethyl acetate	8.63	43	42964	49.77	ug/kg	87

(#)=qualifier out of range (m)=manual integration

K33888.D K042409S.M

Mon Apr 27 12:36:38 2009

MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33888.D
 Acq On : 27 Apr 2009 10:46 am
 Sample : bsd
 Misc : ms18104,msk1193,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 12:35:13 2009

Vial: 3
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	63085	48.08	ug/kg	94
39) chloroform	8.58	83	180001	49.04	ug/kg	96
41) Tetrahydrofuran	8.92	42	25435	46.38	ug/kg	83
42) 1,1,1-trichloroethane	9.35	97	139677	50.57	ug/kg	100
43) n-Butyl Alcohol	9.34	TIC	349430	235.01	ug/L #	100
45) Cyclohexane	9.62	56	93392	45.30	ug/kg	97
46) carbon tetrachloride	9.71	117	128374	50.48	ug/kg	92
47) 1,1-dichloropropene	9.51	75	120746	46.72	ug/kg	97
48) benzene	9.74	78	371355	46.50	ug/kg	98
49) 1,2-dichloroethane	9.23	62	119711	48.57	ug/kg	94
50) tert-amyl methyl ether	9.85	73	282877	53.11	ug/kg	99
51) heptane	10.21	43	97021	45.04	ug/kg	96
52) 2-Nitropropane	10.33	TIC	1372009m	50.80	ug/L	
53) trichloroethene	10.36	95	107004	48.79	ug/kg	97
54) 1,2-dichloropropene	10.32	63	93375	49.48	ug/kg	99
55) dibromomethane	10.30	93	61290	50.77	ug/kg	95
56) bromodichloromethane	10.41	83	134156	52.54	ug/kg	94
57) Methylcyclohexane	10.88	83	107510	48.16	ug/kg	98
58) 2-chloroethyl vinyl ether	10.79	63	2165	34.84	ug/kg#	100
59) methyl methacrylate	10.50	69	64633	52.73	ug/kg	97
60) 1,4-dioxane	10.54	88	4629m	247.23	ug/kg	
61) cis-1,3-dichloropropene	11.03	75	146282	50.90	ug/kg	98
63) 4-methyl-2-pentanone	11.12	43	81258	52.17	ug/kg	99
64) toluene	11.81	92	235814	50.55	ug/kg	97
65) trans-1,3-dichloropropene	11.45	75	120996	50.57	ug/kg	97
66) 1,1,2-trichloroethane	11.62	83	74657	52.13	ug/kg	97
67) ethyl methacrylate	11.82	69	115691	60.05	ug/kg	89
69) tetrachloroethene	12.55	166	112631	48.02	ug/kg	96
70) 1,3-dichloropropene	11.85	76	139538	50.12	ug/kg	100
71) dibromochloromethane	12.15	129	109999	53.60	ug/kg	95
72) 1,2-dibromoethane	12.40	107	95826	50.81	ug/kg	97
73) 2-hexanone	11.98	43	54640	48.79	ug/kg	97
74) chlorobenzene	13.23	112	275102	49.92	ug/kg	97
75) 1,1,1,2-tetrachloroethane	13.15	131	105498	50.50	ug/kg	100
76) ethylbenzene	13.40	91	415102	50.09	ug/kg	100
77) m,p-xylene	13.59	106	343797	102.93	ug/kg	99
78) o-xylene	14.00	106	167154	50.97	ug/kg	99
79) styrene	13.93	104	265259	53.48	ug/kg	100
80) bromoform	13.75	173	69334	52.00	ug/kg	98
81) trans-1,4-dichloro-2-buten	14.15	53	26800	52.40	ug/kg	96
83) isopropylbenzene	14.36	105	360217	53.01	ug/kg	99
85) bromobenzene	14.65	156	125293	50.08	ug/kg	98
86) 1,1,2,2-tetrachloroethane	14.00	83	104688	50.59	ug/kg	92
87) 1,2,3-trichloropropene	14.15	75	116895	51.10	ug/kg	98
88) n-propylbenzene	14.81	91	439409	51.58	ug/kg	98
89) 2-chlorotoluene	14.93	91	278044	49.41	ug/kg	99
90) 4-chlorotoluene	15.00	91	281520	50.57	ug/kg	99
91) 1,3,5-trimethylbenzene	15.08	105	328009	50.92	ug/kg	100
92) tert-butylbenzene	15.39	91	175436	51.14	ug/kg	97

(#) = qualifier out of range (m) = manual integration

K33888.D K042409S.M

Mon Apr 27 12:36:38 2009

MSK

Page 2

Quantitation Report

(QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33888.D
Acq On : 27 Apr 2009 10:46 am
Sample : bsd
Misc : ms18104,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:35:13 2009

Vial: 3
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.50	105	349548	52.97	ug/kg	99
94) sec-butylbenzene	15.61	105	412713	51.11	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	232977	49.85	ug/kg	99
96) p-isopropyltoluene	15.78	119	367718	50.71	ug/kg	99
97) 1,4-dichlorobenzene	15.78	146	237946	48.56	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	236611	50.39	ug/kg	100
99) n-butylbenzene	16.20	91	308888	51.15	ug/kg	99
100) 1,2-dibromo-3-chloropropan	16.63	75	15158	49.84	ug/kg	88
101) 1,2,4-trichlorobenzene	18.03	180	125695	53.23	ug/kg	97
102) hexachlorobutadiene	18.34	225	68918	52.08	ug/kg	98
103) naphthalene	18.32	128	271369	50.81	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	93629	51.40	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33888.D K042409S.M Mon Apr 27 12:36:38 2009 MSK

(QT Reviewed)

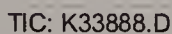
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      Vial: 3
Operator: RobertT
Inst      : gcms k
Multiplr: 1.00

Results File: K042409S.RES

```

Quant Results File: K042409S.RES



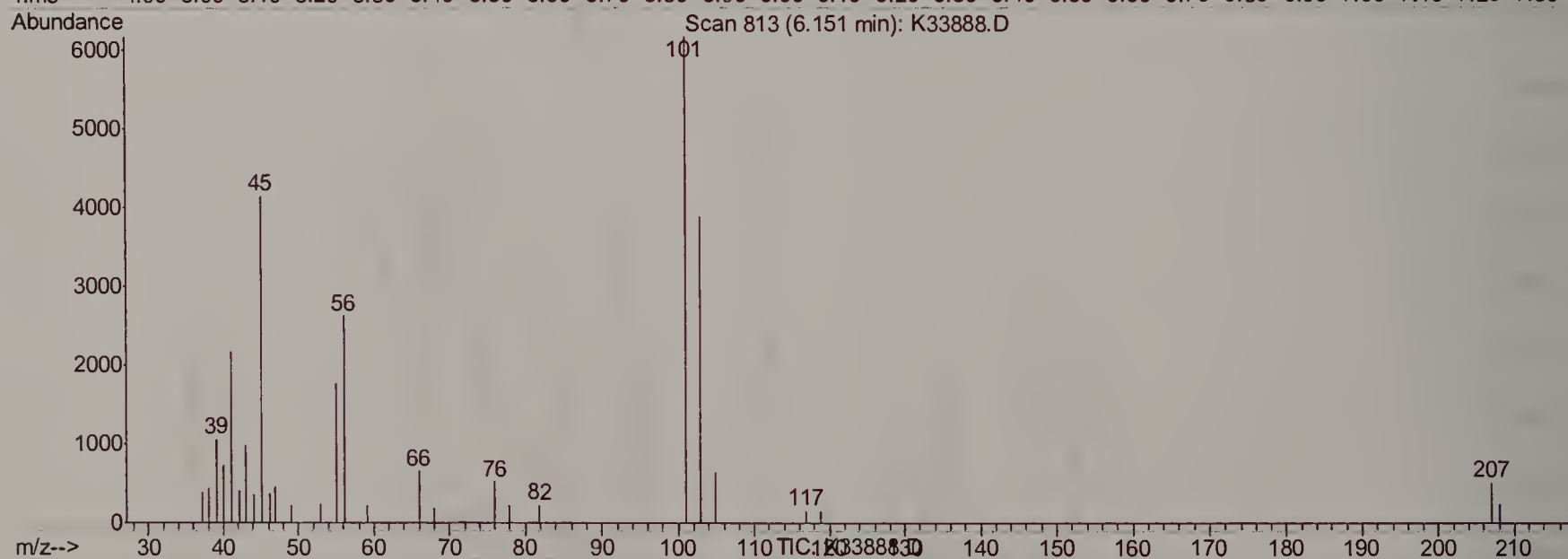
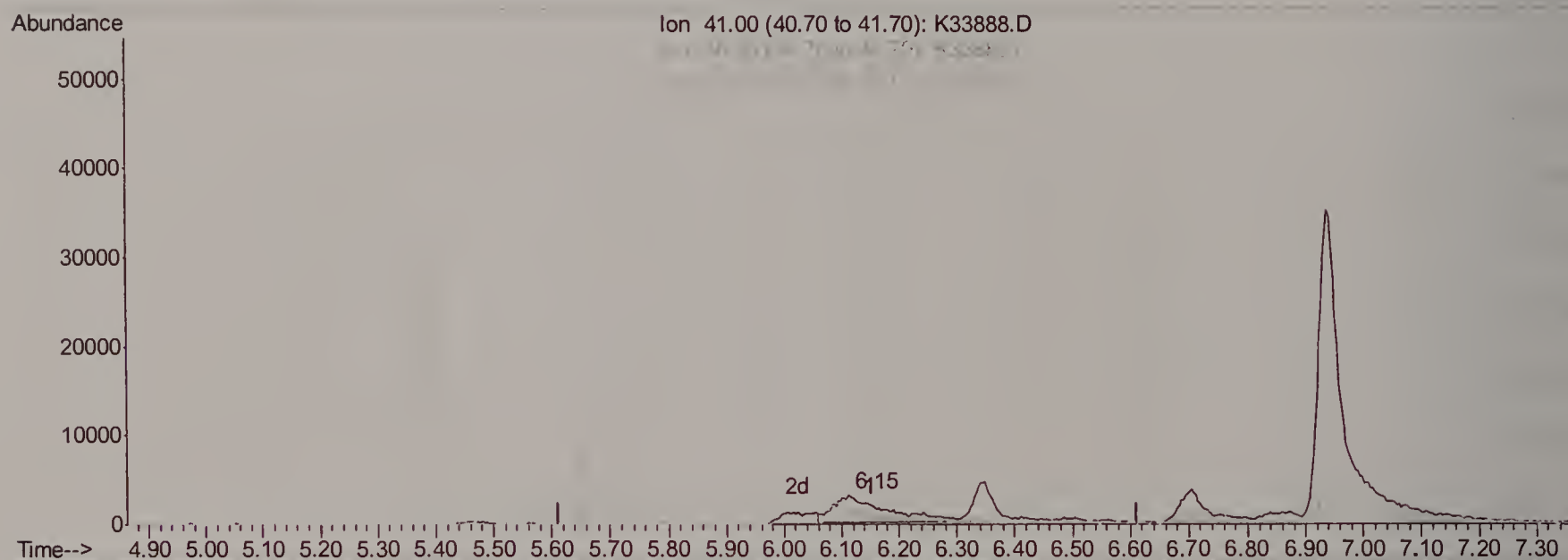
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33888.D
Acq On : 27 Apr 2009 10:46 am
Sample : bsd
Misc : ms18104,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:35 2009

Vial: 3
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.15min 30.98ug/kg

response 19468

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	27.78
39.00	58.00	38.83
0.00	0.00	0.00

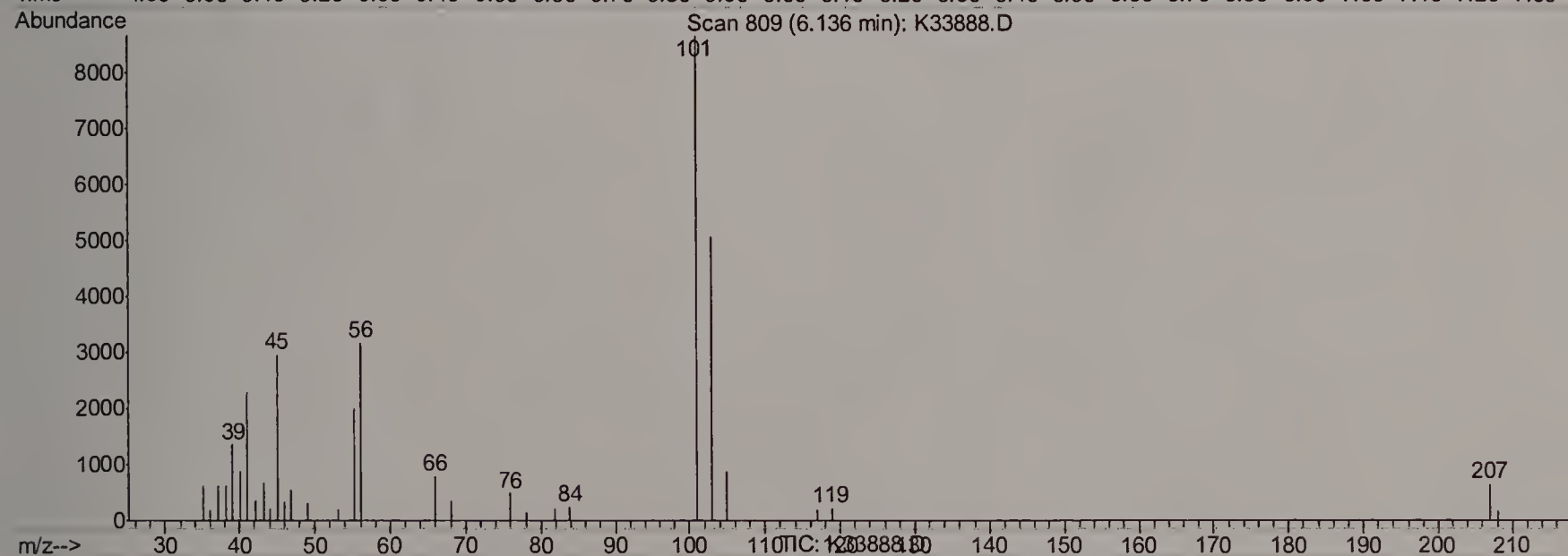
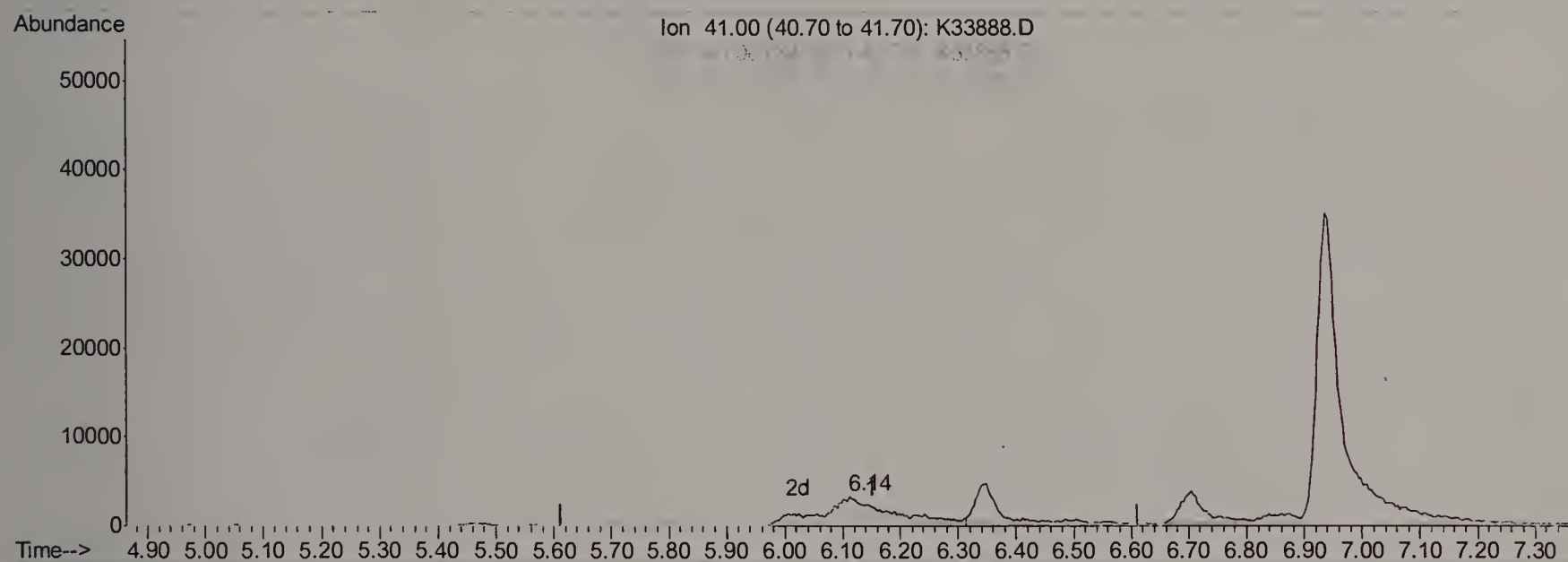
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33888.D
Acq On : 27 Apr 2009 10:46 am
Sample : bsd
Misc : ms18104,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:35 2009

Vial: 3
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.14min 46.05ug/kg m

response 28600

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	39.08
39.00	58.00	58.95
0.00	0.00	0.00

Doug Yargeau
04/27/09 13:55

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33857.D
Acq On : 24 Apr 2009 7:36 pm
Sample : m82031-1ms
Misc : ms18104,msk1192,18.960,,1,15,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:27:28 2009

Vial: 16
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	57124m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	210262	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	282287	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	114032	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.75	152	138100	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	103689	50.14	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	100.28%
62) toluene-d8 (s)	11.73	98	347433	52.22	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	104.44%
84) bromofluorobenzene (s)	14.42	95	125984	52.35	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	104.70%

Target Compounds

						Qvalue
2) tertiary butyl alcohol	6.72	59	72548	504.09	ug/kg	97
3) Ethanol	5.64	45	86554m	4951.66	ug/kg	
5) dichlorodifluoromethane	4.35	85	59053	49.19	ug/kg	100
6) chloromethane	4.57	50	45739	47.49	ug/kg	99
7) vinyl chloride	4.83	62	33301	53.08	ug/kg	98
8) bromomethane	5.37	96	47061	48.96	ug/kg	99
9) chloroethane	5.51	64	45817	50.60	ug/kg	95
10) ethyl ether	6.35	59	76893	50.24	ug/kg	94
11) acetonitrile	6.13	41	31051m	51.87	ug/kg	
12) trichlorofluoromethane	6.16	101	130042	51.31	ug/kg	74
13) freon-113	6.96	101	71941	54.20	ug/kg	87
14) acrolein	6.11	56	75054	252.53	ug/kg	100
15) 1,1-dichloroethene	6.74	96	79496m	49.47	ug/kg	
16) acetone	6.25	43	20272m	39.08	ug/kg	
17) Methyl Acetate	6.89	43	127747	49.27	ug/kg	98
18) methylene chloride	6.88	84	94553	49.42	ug/kg	92
19) methyl tert butyl ether	7.64	73	276762	50.43	ug/kg	98
20) acrylonitrile	6.77	53	178649	256.71	ug/kg	99
21) allyl chloride	6.98	41	124414	49.96	ug/kg	97
22) trans-1,2-dichloroethene	7.57	96	106464	49.01	ug/kg	89
23) iodomethane	6.80	142	157397m	50.32	ug/kg	
24) carbon disulfide	7.16	76	252967	50.66	ug/kg	99
25) propionitrile	7.86	54	12503	50.40	ug/kg	100
26) vinyl acetate	7.91	43	173837	51.51	ug/kg	98
27) chloroprene	8.17	53	142811	52.78	ug/kg	97
28) di-isopropyl ether	8.21	45	289884	50.47	ug/kg	99
29) methacrylonitrile	8.33	41	53903	50.83	ug/kg	99
30) 2-butanone	8.23	72	12110	43.64	ug/kg#	89
31) Hexane	8.19	41	116153	49.96	ug/kg	95
32) 1,1-dichloroethane	7.81	63	164669	49.99	ug/kg	98
33) tert-butyl ethyl ether	8.60	59	285999	52.07	ug/kg	97
34) isobutyl alcohol	8.63	43	42044	248.24	ug/kg#	54
35) 2,2-dichloropropane	8.67	77	90228	47.85	ug/kg	99
36) cis-1,2-dichloroethene	8.37	96	113917	48.25	ug/kg	96
37) ethyl acetate	8.63	43	42044	50.38	ug/kg	80

(#)=qualifier out of range (m)=manual integration

K33857.D K042409S.M

Mon Apr 27 11:30:25 2009

MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33857.D
Acq On : 24 Apr 2009 7:36 pm
Sample : m82031-1ms
Misc : ms18104,msk1192,18.960,,1,15,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:27:28 2009

Vial: 16
Operator: RobertT
Inst : gcms k
Multiplr: 1.00
Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	62997	49.67	ug/kg	98
39) chloroform	8.58	83	174568	49.20	ug/kg	100
41) Tetrahydrofuran	8.92	42	26803	50.56	ug/kg	92
42) 1,1,1-trichloroethane	9.35	97	140746	52.72	ug/kg	97
43) n-Butyl Alcohol	9.34	TIC	353711	246.12	ug/L #	100
45) Cyclohexane	9.62	56	103972m	51.94	ug/kg	
46) carbon tetrachloride	9.71	117	130028	52.67	ug/kg	95
47) 1,1-dichloropropene	9.51	75	128769	51.32	ug/kg	98
48) benzene	9.73	78	383918	49.51	ug/kg	99
49) 1,2-dichloroethane	9.23	62	118189	49.39	ug/kg	95
50) tert-amyl methyl ether	9.85	73	270783	52.37	ug/kg	98
51) heptane	10.21	43	113689	54.36	ug/kg	98
52) 2-Nitropropane	10.33	TIC	1359147	51.91	ug/L #	100
53) trichloroethene	10.35	95	108153	50.80	ug/kg	97
54) 1,2-dichloropropane	10.32	63	92940	50.73	ug/kg	98
55) dibromomethane	10.29	93	59563	50.82	ug/kg	96
56) bromodichloromethane	10.41	83	124626	50.27	ug/kg	95
57) Methylcyclohexane	10.88	83	116772	53.88	ug/kg	98
58) 2-chloroethyl vinyl ether	10.78	63	3218	49.91	ug/kg#	100
59) methyl methacrylate	10.50	69	65550	55.09	ug/kg	98
60) 1,4-dioxane	10.54	88	4981	272.99	ug/kg#	100
61) cis-1,3-dichloropropene	11.02	75	144356	51.73	ug/kg	100
63) 4-methyl-2-pentanone	11.12	43	80703	53.37	ug/kg	99
64) toluene	11.80	92	262551	57.98	ug/kg	99
65) trans-1,3-dichloropropene	11.44	75	120132	51.72	ug/kg	96
66) 1,1,2-trichloroethane	11.62	83	71275	51.26	ug/kg	91
67) ethyl methacrylate	11.82	69	109018	58.28	ug/kg	93
69) tetrachloroethene	12.55	166	114031	49.26	ug/kg	97
70) 1,3-dichloropropane	11.85	76	134393	48.92	ug/kg	98
71) dibromochloromethane	12.15	129	100596	49.67	ug/kg	99
72) 1,2-dibromoethane	12.40	107	92506	49.70	ug/kg	97
73) 2-hexanone	11.97	43	50607	45.79	ug/kg	96
74) chlorobenzene	13.23	112	267004	49.09	ug/kg	98
75) 1,1,1,2-tetrachloroethane	13.14	131	101640	49.30	ug/kg	94
76) ethylbenzene	13.40	91	517524	63.29	ug/kg	100
77) m,p-xylene	13.58	106	596667	181.02	ug/kg	98
78) o-xylene	14.00	106	257279	79.49	ug/kg	98
79) styrene	13.93	104	263031	53.74	ug/kg	99
80) bromoform	13.75	173	66507	50.54	ug/kg	94
81) trans-1,4-dichloro-2-buten	14.15	53	26136	51.78	ug/kg	90
83) isopropylbenzene	14.36	105	382162	56.58	ug/kg	100
85) bromobenzene	14.65	156	125277	50.38	ug/kg	98
86) 1,1,2,2-tetrachloroethane	14.00	83	104830	50.97	ug/kg	92
87) 1,2,3-trichloropropane	14.15	75	113647	49.99	ug/kg	96
88) n-propylbenzene	14.81	91	596807	70.48	ug/kg	98
89) 2-chlorotoluene	14.92	91	402000	71.87	ug/kg	83
90) 4-chlorotoluene	15.00	91	279528	50.52	ug/kg	99
91) 1,3,5-trimethylbenzene	15.08	105	864381	135.02	ug/kg	99
92) tert-butylbenzene	15.39	91	172802	50.67	ug/kg	95

(#) = qualifier out of range (m) = manual integration

K33857.D K042409S.M Mon Apr 27 11:30:25 2009 MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33857.D Vial: 16
Acq On : 24 Apr 2009 7:36 pm Operator: RobertT
Sample : m82031-1ms Inst : gcms k
Misc : ms18104,msk1192,18.960,,1,15,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:27:28 2009 Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	2068448	315.34	ug/kg	97
94) sec-butylbenzene	15.61	105	435660	54.28	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	228705	49.23	ug/kg	99
96) p-isopropyltoluene	15.78	119	400181	55.53	ug/kg	98
97) 1,4-dichlorobenzene	15.78	146	234339	48.11	ug/kg	99
98) 1,2-dichlorobenzene	16.15	146	225476	48.31	ug/kg	99
99) n-butylbenzene	16.20	91	503856	83.95	ug/kg#	22
100) 1,2-dibromo-3-chloropropan	16.63	75	19527	64.60	ug/kg	78
101) 1,2,4-trichlorobenzene	18.03	180	119099	50.74	ug/kg	99
102) hexachlorobutadiene	18.34	225	65835	49.90	ug/kg	96
103) naphthalene	18.32	128	590367	111.21	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	84088	46.44	ug/kg	100

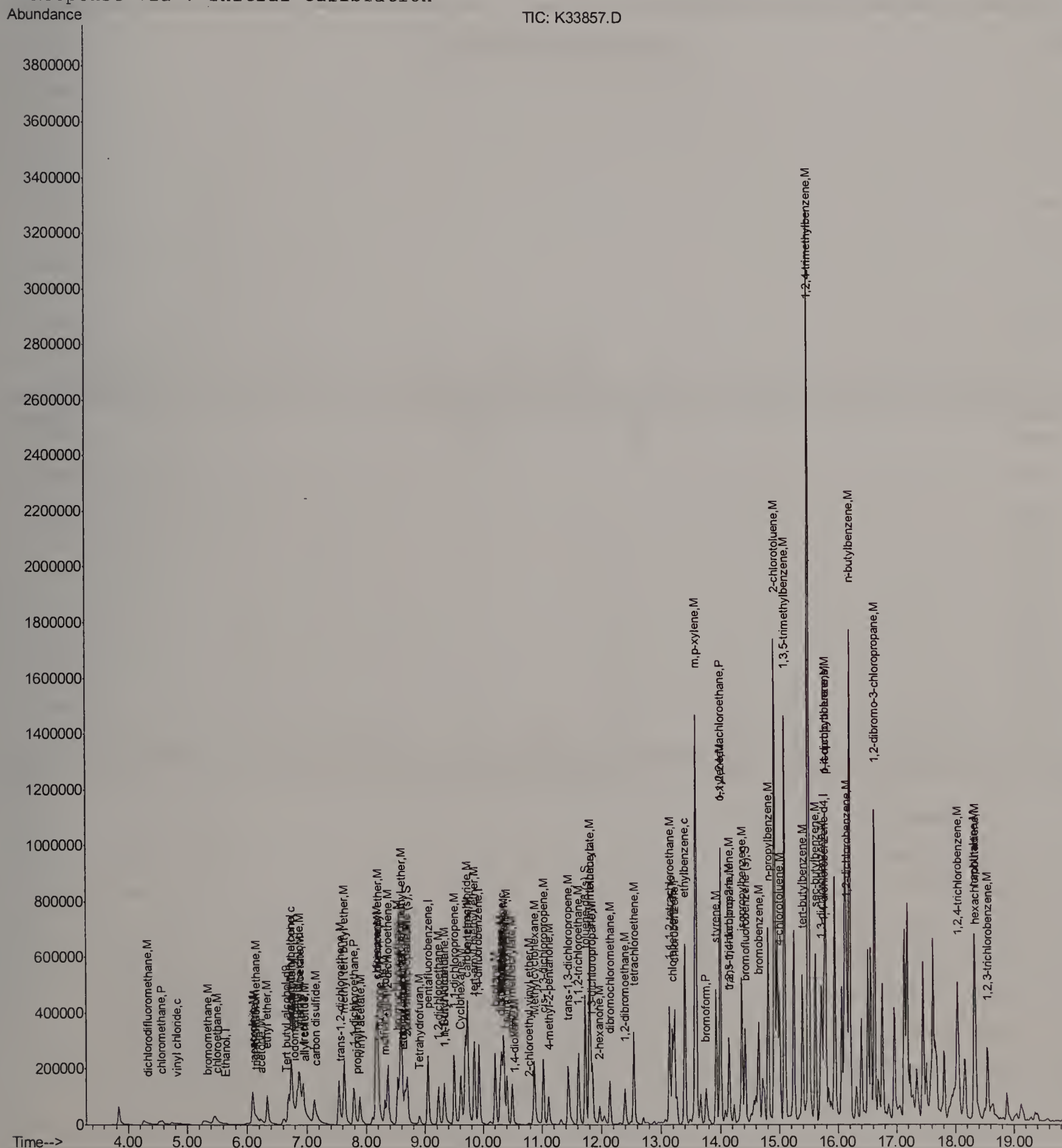
(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33857.D K042409S.M Mon Apr 27 11:30:25 2009 MSK

(OT Reviewed)

Vial: 16
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

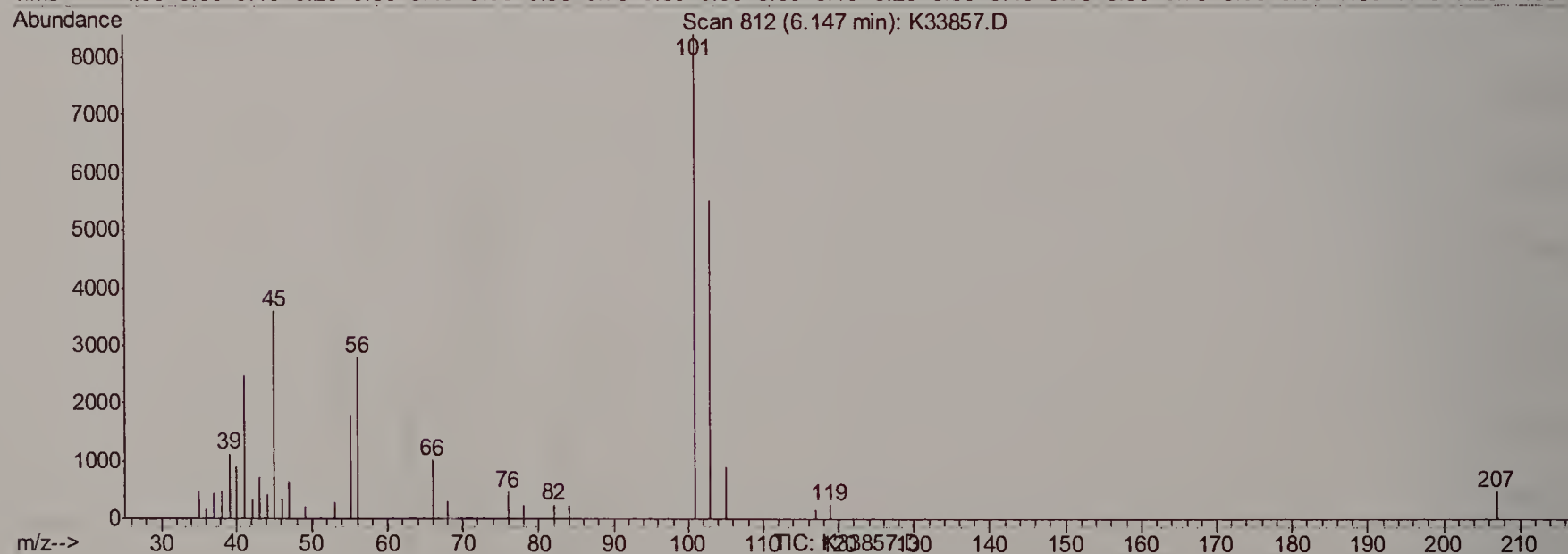
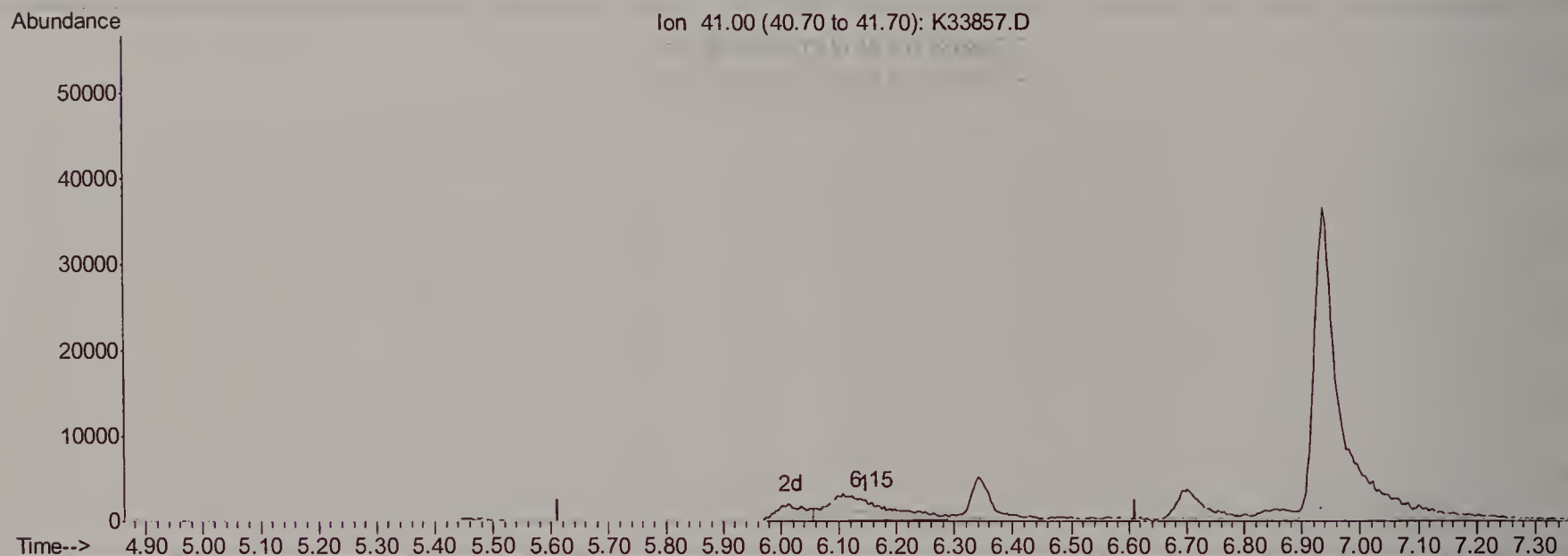
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Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Mon Apr 27 09:11:43 2009
Response via  : Initial Calibration
```



Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33857.D Vial: 16
 Acq On : 24 Apr 2009 7:36 pm Operator: RobertT
 Sample : m82031-lms Inst : gcms k
 Misc : ms18104,msk1192,18.960,,1,15,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 11:27 2009 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.15min 35.08ug/kg

response 21217

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	31.60
39.00	58.00	37.92
0.00	0.00	0.00

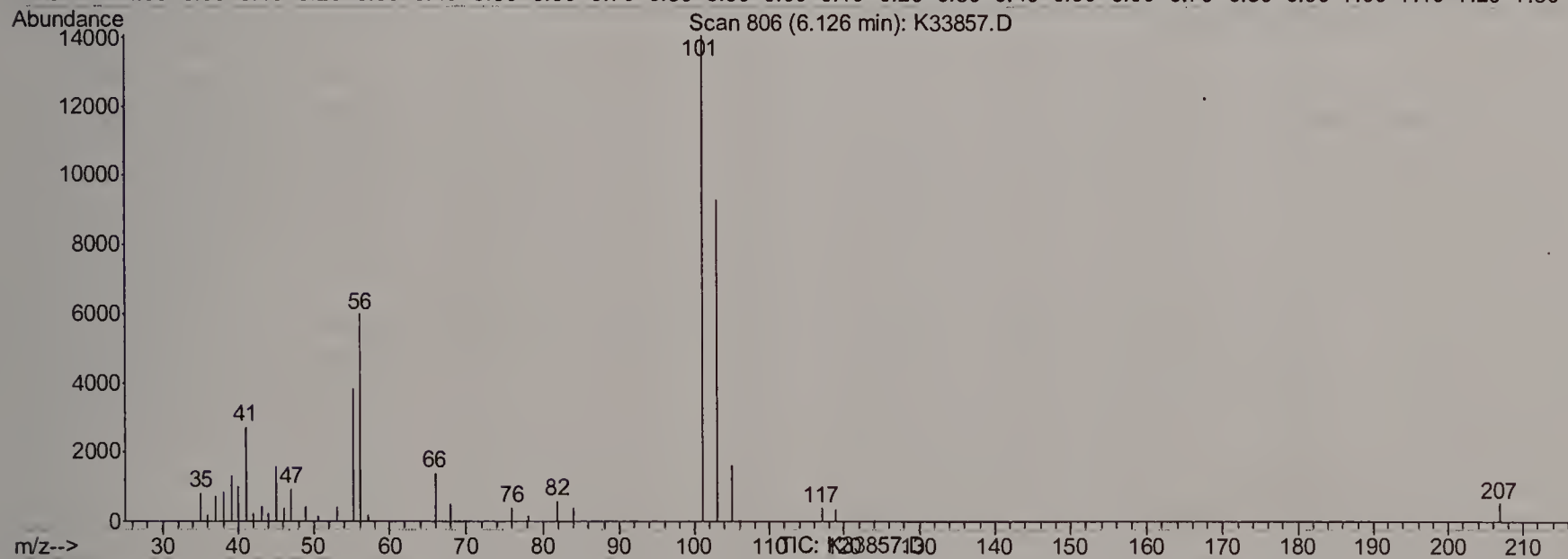
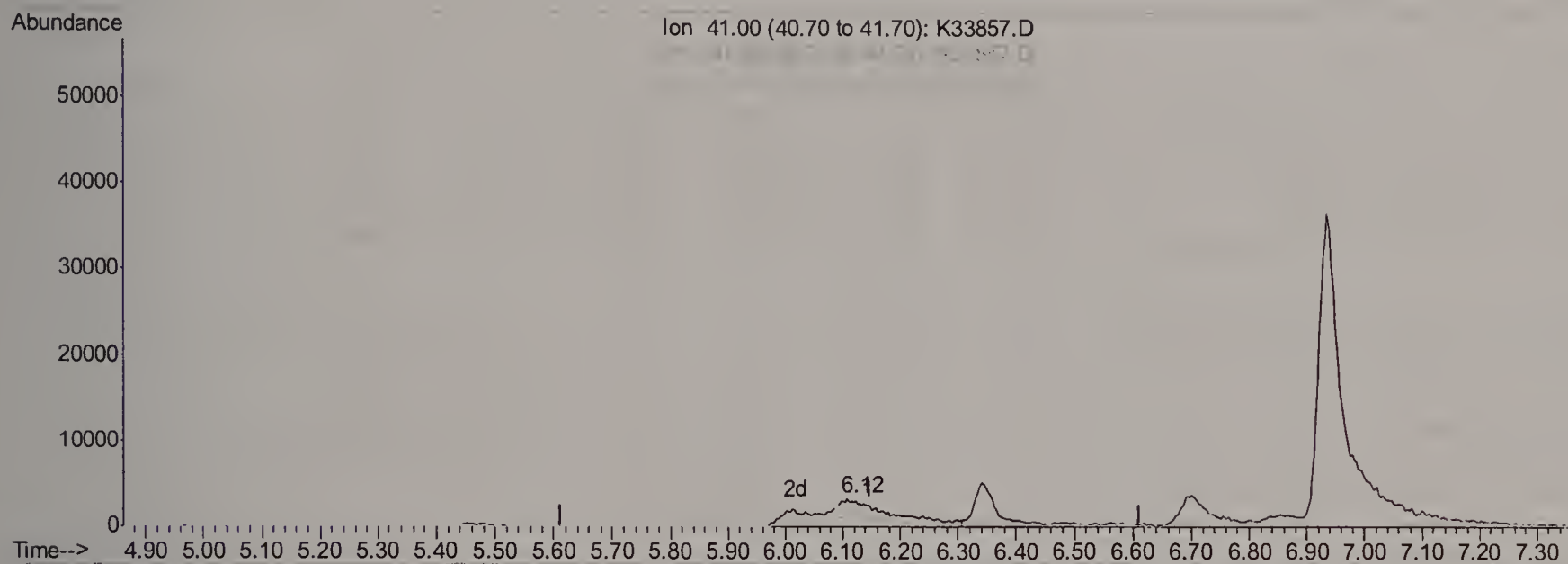
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33857.D
Acq On : 24 Apr 2009 7:36 pm
Sample : m82031-1ms
Misc : ms18104,msk1192,18.960,,1,15,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:27 2009

Vial: 16
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 51.87ug/kg m

response 31051

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	37.80
39.00	58.00	48.62
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33858.D
 Acq On : 24 Apr 2009 8:02 pm
 Sample : m82031-1msd
 Misc : ms18104,msk1192,18.960,,1,15,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 11:30:48 2009

Vial: 17
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	55051m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	214290	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	286024	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	115085	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	137247	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	101309	48.07	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	96.14%
62) toluene-d8 (s)	11.73	98	338552	50.22	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	100.44%
84) bromofluorobenzene (s)	14.42	95	119517	49.97	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	99.94%

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) tertiary butyl alcohol	6.72	59	71849	518.03	ug/kg	90
3) Ethanol	5.64	45	82877m	4919.84	ug/kg	
5) dichlorodifluoromethane	4.35	85	56279	46.00	ug/kg	98
6) chloromethane	4.57	50	43139	43.95	ug/kg	96
7) vinyl chloride	4.83	62	32030	50.09	ug/kg	96
8) bromomethane	5.36	96	47341	48.30	ug/kg	89
9) chloroethane	5.51	64	44466	48.18	ug/kg	98
10) ethyl ether	6.35	59	76108	48.79	ug/kg	95
11) acetonitrile	6.13	41	29311m	47.96	ug/kg	
12) trichlorofluoromethane	6.18	101	127699m	49.44	ug/kg	
13) freon-113	6.95	101	68881	50.92	ug/kg	80
14) acrolein	6.11	56	76936	253.99	ug/kg	100
15) 1,1-dichloroethene	6.75	96	79423	48.50	ug/kg	86
16) acetone	6.25	43	19070	36.07	ug/kg	96
17) Methyl Acetate	6.89	43	131740	49.85	ug/kg	99
18) methylene chloride	6.88	84	91805	47.08	ug/kg	89
19) methyl tert butyl ether	7.64	73	274199	49.02	ug/kg	100
20) acrylonitrile	6.76	53	177341	250.04	ug/kg	99
21) allyl chloride	6.97	41	119630	47.14	ug/kg	98
22) trans-1,2-dichloroethene	7.56	96	103523	46.77	ug/kg	92
23) iodomethane	6.80	142	155081	48.65	ug/kg	97
24) carbon disulfide	7.16	76	242501	47.65	ug/kg	99
25) propionitrile	7.85	54	12463	49.33	ug/kg	100
26) vinyl acetate	7.91	43	173884	50.55	ug/kg	97
27) chloroprene	8.17	53	138717	50.30	ug/kg	100
28) di-isopropyl ether	8.21	45	284435	48.59	ug/kg	99
29) methacrylonitrile	8.33	41	54238	50.19	ug/kg	96
30) 2-butanone	8.23	72	11492	40.48	ug/kg#	83
31) Hexane	8.19	41	114637	48.38	ug/kg	92
32) 1,1-dichloroethane	7.81	63	161279	48.04	ug/kg	97
33) tert-butyl ethyl ether	8.60	59	281085	50.21	ug/kg	98
34) isobutyl alcohol	8.62	43	38410	222.52	ug/kg	99
35) 2,2-dichloropropane	8.67	77	85854	44.67	ug/kg	98
36) cis-1,2-dichloroethene	8.37	96	111005	46.13	ug/kg	96
37) ethyl acetate	8.62	43	38410	45.16	ug/kg	97

(#)=qualifier out of range (m)=manual integration

K33858.D K042409S.M

Mon Apr 27 11:32:05 2009

MSK

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Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33858.D
Acq On : 24 Apr 2009 8:02 pm
Sample : m82031-1msd
Misc : ms18104,msk1192,18.960,,1,15,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:30:48 2009

Vial: 17
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	62797	48.59	ug/kg	98
39) chloroform	8.58	83	171859	47.53	ug/kg	96
41) Tetrahydrofuran	8.92	42	26662	49.35	ug/kg	96
42) 1,1,1-trichloroethane	9.35	97	136462	50.16	ug/kg	95
43) n-Butyl Alcohol	9.34	TIC	345449	235.85	ug/L #	100
45) Cyclohexane	9.62	56	100060m	49.33	ug/kg	
46) carbon tetrachloride	9.71	117	127016	50.78	ug/kg	96
47) 1,1-dichloropropene	9.51	75	123732	48.67	ug/kg	97
48) benzene	9.73	78	377157	48.00	ug/kg	99
49) 1,2-dichloroethane	9.23	62	118755	48.98	ug/kg	96
50) tert-amyl methyl ether	9.85	73	268196	51.19	ug/kg	99
51) heptane	10.21	43	109653	51.74	ug/kg	99
52) 2-Nitropropane	10.33	TIC	1338991	50.37	ug/L #	100
53) trichloroethene	10.35	95	105329	48.82	ug/kg	98
54) 1,2-dichloropropane	10.32	63	91111	49.08	ug/kg	98
55) dibromomethane	10.29	93	58924	49.61	ug/kg	94
56) bromodichloromethane	10.41	83	123642	49.22	ug/kg	98
57) Methylcyclohexane	10.88	83	113809	51.82	ug/kg	95
58) 2-chloroethyl vinyl ether	10.78	63	3283	50.21	ug/kg#	100
59) methyl methacrylate	10.50	69	65206	54.08	ug/kg	93
60) 1,4-dioxane	10.53	88	4650	252.26	ug/kg#	100
61) cis-1,3-dichloropropene	11.02	75	140128	49.56	ug/kg	97
63) 4-methyl-2-pentanone	11.12	43	78232	51.06	ug/kg	99
64) toluene	11.80	92	252914	55.12	ug/kg	99
65) trans-1,3-dichloropropene	11.44	75	117758	50.04	ug/kg	99
66) 1,1,2-trichloroethane	11.62	83	71230	50.56	ug/kg	93
67) ethyl methacrylate	11.82	69	102954	54.32	ug/kg	92
69) tetrachloroethene	12.55	166	112492	48.16	ug/kg	96
70) 1,3-dichloropropane	11.85	76	134022	48.33	ug/kg	97
71) dibromochloromethane	12.15	129	100534	49.18	ug/kg	99
72) 1,2-dibromoethane	12.40	107	91972	48.96	ug/kg	98
73) 2-hexanone	11.97	43	49324	44.22	ug/kg	95
74) chlorobenzene	13.23	112	261705	47.68	ug/kg	97
75) 1,1,1,2-tetrachloroethane	13.14	131	100553	48.33	ug/kg	98
76) ethylbenzene	13.40	91	501427	60.76	ug/kg	100
77) m,p-xylene	13.58	106	586181	176.21	ug/kg	99
78) o-xylene	14.00	106	250291	76.62	ug/kg	100
79) styrene	13.93	104	256017	51.83	ug/kg	99
80) bromoform	13.75	173	65684	49.46	ug/kg	96
81) trans-1,4-dichloro-2-buten	14.15	53	25758	50.56	ug/kg	91
83) isopropylbenzene	14.36	105	369843	55.09	ug/kg	100
85) bromobenzene	14.65	156	121639	49.22	ug/kg	96
86) 1,1,2,2-tetrachloroethane	14.00	83	102665	50.23	ug/kg	94
87) 1,2,3-trichloropropane	14.15	75	111384	49.29	ug/kg	97
88) n-propylbenzene	14.81	91	580671	69.00	ug/kg	100
89) 2-chlorotoluene	14.92	91	389191	70.01	ug/kg	84
90) 4-chlorotoluene	15.00	91	269723	49.05	ug/kg	99
91) 1,3,5-trimethylbenzene	15.08	105	838137	131.73	ug/kg	100
92) tert-butylbenzene	15.39	91	167851	49.53	ug/kg	97

(#)=qualifier out of range (m)=manual integration

K33858.D K042409S.M Mon Apr 27 11:32:05 2009 MSK

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Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33858.D
Acq On : 24 Apr 2009 8:02 pm
Sample : m82031-1msd
Misc : ms18104,msk1192,18.960,,1,15,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:30:48 2009

Vial: 17
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response.	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	2018803	309.69	ug/kg	97
94) sec-butylbenzene	15.61	105	418978	52.53	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	221095	47.89	ug/kg	100
96) p-isopropyltoluene	15.78	119	381425	53.25	ug/kg	98
97) 1,4-dichlorobenzene	15.78	146	231555	47.84	ug/kg	97
98) 1,2-dichlorobenzene	16.15	146	220007	47.44	ug/kg	99
99) n-butylbenzene	16.20	91	482055	80.81	ug/kg#	26
100) 1,2-dibromo-3-chloropropan	16.63	75	19226	64.00	ug/kg#	74
101) 1,2,4-trichlorobenzene	18.03	180	116181	49.81	ug/kg	98
102) hexachlorobutadiene	18.34	225	61661	46.81	ug/kg	96
103) naphthalene	18.32	128	594571	112.70	ug/kg	100
104) 1,2,3-trichlorobenzene	18.54	180	86797	48.24	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33858.D K042409S.M Mon Apr 27 11:32:05 2009 MSK

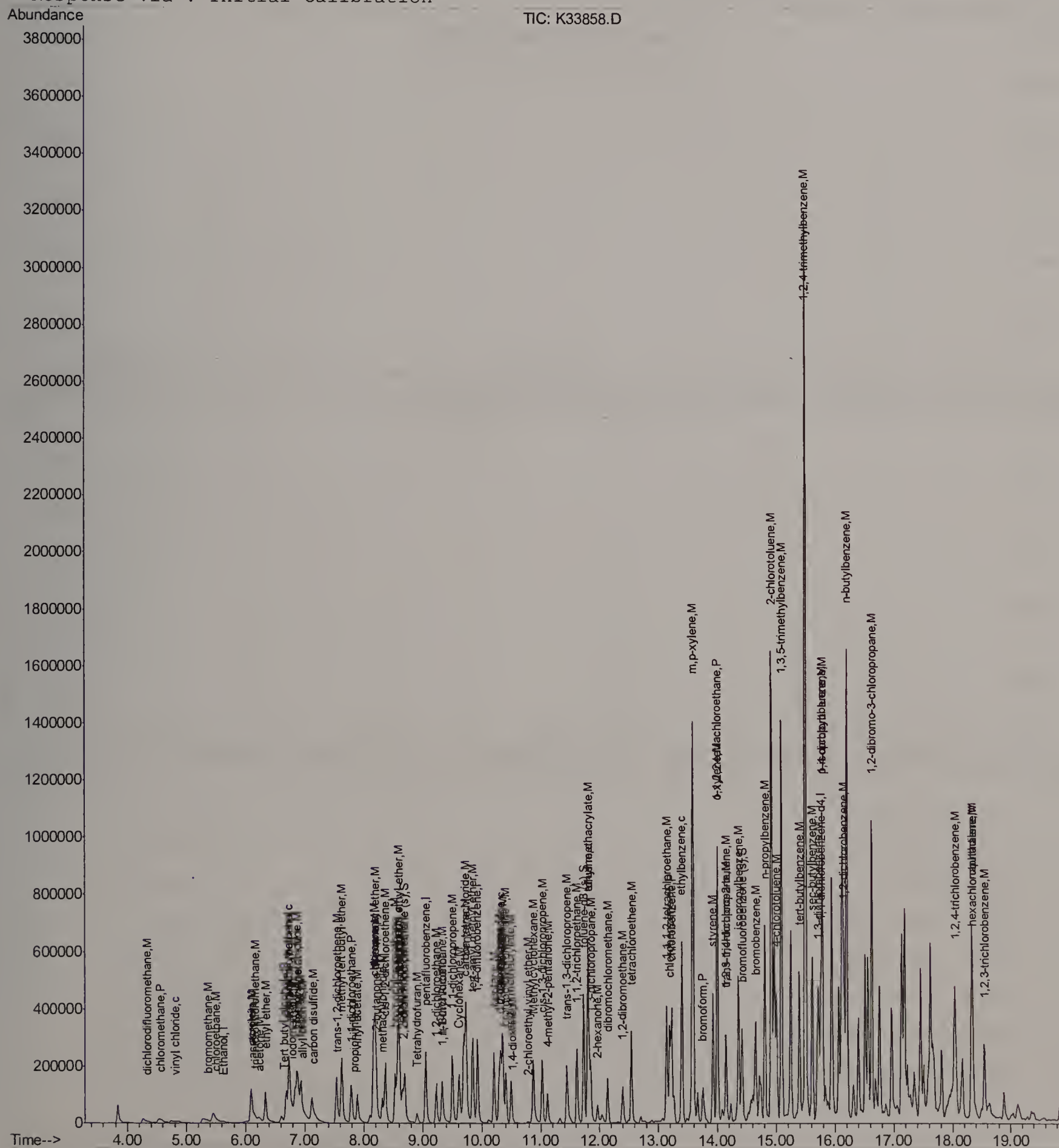
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33858.D
Acq On : 24 Apr 2009 8:02 pm
Sample : m82031-1msd
Misc : msl8104,mskl192,18.960,,1,15,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:31 2009

Vial: 17
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration



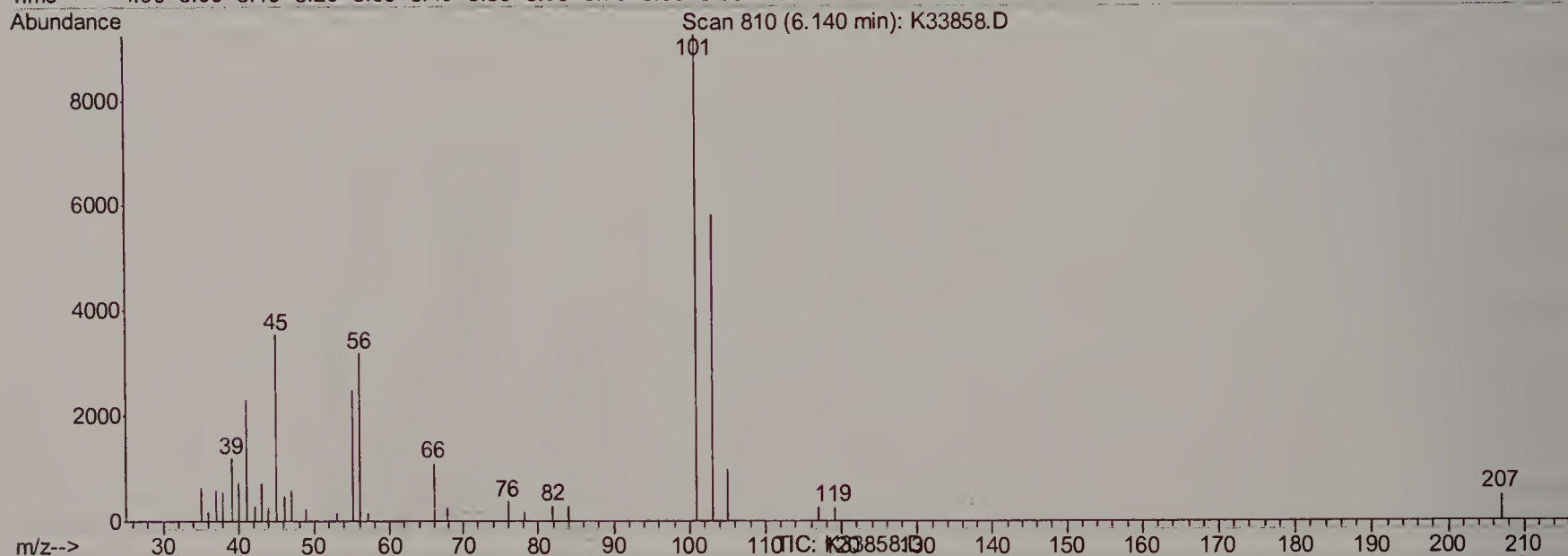
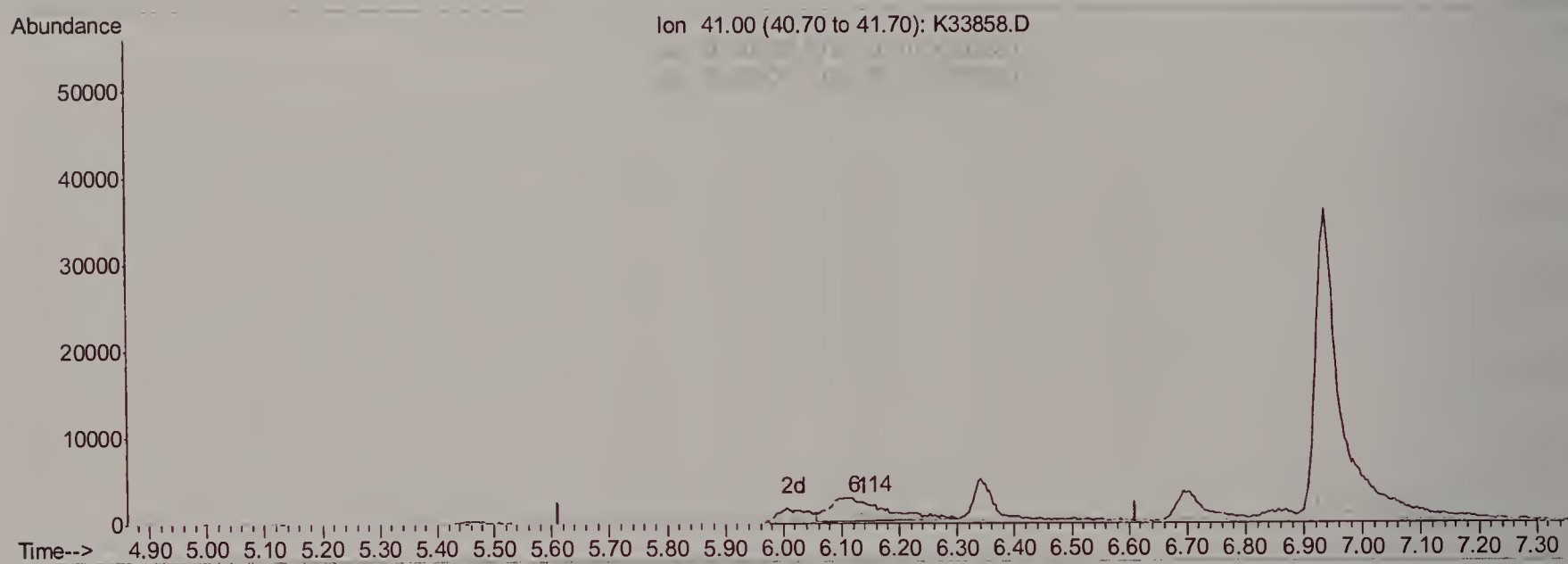
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33858.D
Acq On : 24 Apr 2009 8:02 pm
Sample : m82031-1msd
Misc : ms18104,msk1192,18.960,,1,15,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:30 2009

Vial: 17
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.14min 28.80ug/kg

response 17876

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	29.38
39.00	58.00	46.86
0.00	0.00	0.00

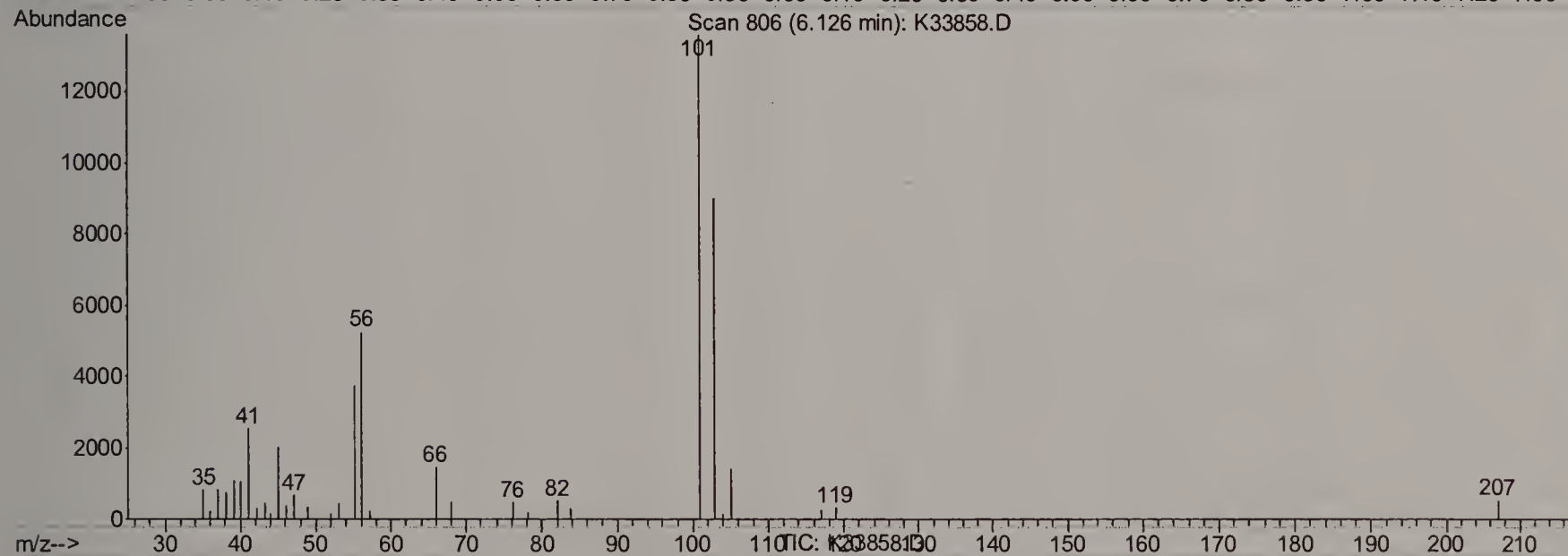
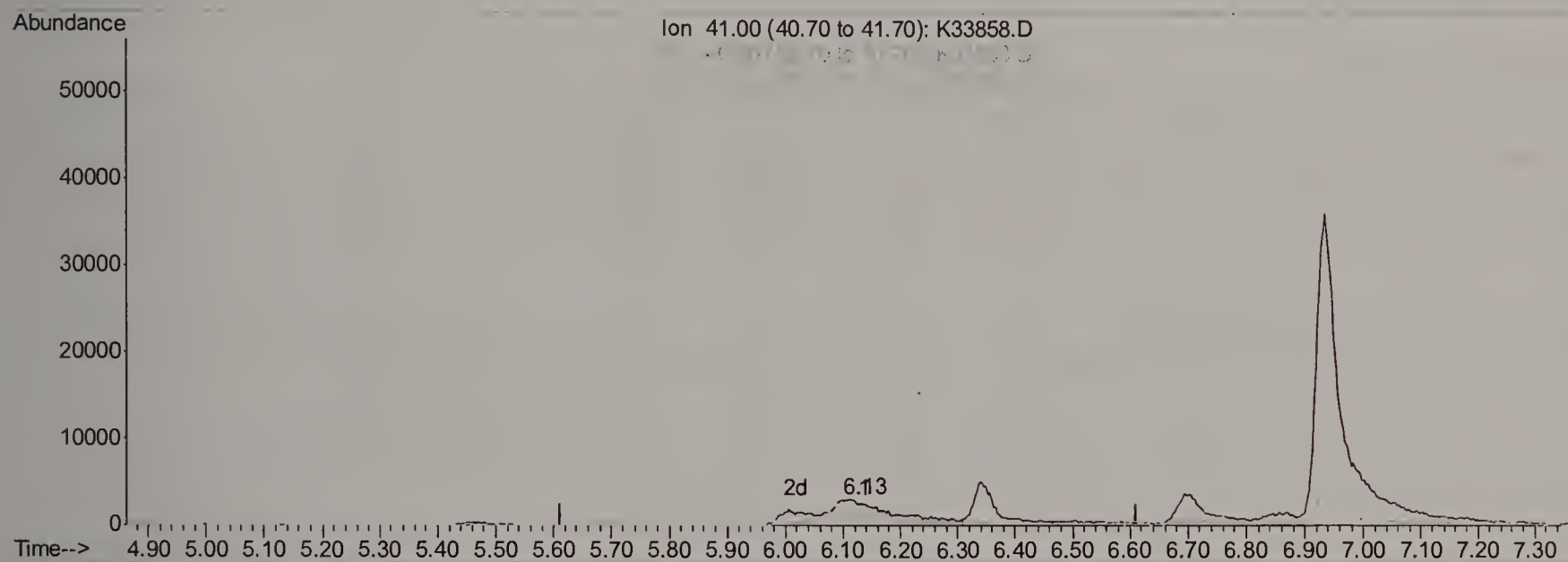
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33858.D
Acq On : 24 Apr 2009 8:02 pm
Sample : m82031-1msd
Misc : ms18104,msk1192,18.960,,1,15,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 11:31 2009

Vial: 17
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 47.96ug/kg m

response 29311

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	41.94
39.00	58.00	43.60
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33902.D
Acq On : 27 Apr 2009 4:52 pm
Sample : m82136-1ms
Misc : ms18113,msk1193,11.930,,10,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:24:39 2009

Vial: 17
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	62126m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	214399	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	285071	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	116234	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	140371	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	101305	48.04	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	96.08%
62) toluene-d8 (s)	11.73	98	337312	50.20	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	100.40%
84) bromofluorobenzene (s)	14.42	95	115974	47.41	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	94.82%

Target Compounds

					Qvalue
2) tertiary butyl alcohol	6.73	59	88334	564.36	ug/kg 91
3) Ethanol	5.65	45	92853	4884.33	ug/kg# 100
5) dichlorodifluoromethane	4.35	85	36036	29.44	ug/kg 93
6) chloromethane	4.57	50	26737	27.23	ug/kg 98
7) vinyl chloride	4.85	62	27693	43.29	ug/kg 97
8) bromomethane	5.39	96	37374	37.70	ug/kg 96
9) chloroethane	5.52	64	36891	39.95	ug/kg 91
10) ethyl ether	6.36	59	73736	47.25	ug/kg 95
11) acetonitrile	6.13	41	30676m	50.22	ug/kg
12) trichlorofluoromethane	6.17	101	103019	39.86	ug/kg 88
13) freon-113	6.94	101	64020	47.30	ug/kg 82
14) acrolein	6.12	56	71317	235.32	ug/kg 100
15) 1,1-dichloroethene	6.74	96	70318m	42.92	ug/kg
16) acetone	6.26	43	21627	40.88	ug/kg 99
17) Methyl Acetate	6.90	43	113706	43.00	ug/kg 96
18) methylene chloride	6.89	84	90858	46.57	ug/kg 96
19) methyl tert butyl ether	7.64	73	283496	50.66	ug/kg 98
20) acrylonitrile	6.76	53	187813	264.67	ug/kg 100
21) allyl chloride	6.97	41	112567	44.33	ug/kg 99
22) trans-1,2-dichloroethene	7.58	96	101784	45.96	ug/kg 92
23) iodomethane	6.81	142	137621	43.15	ug/kg 98
24) carbon disulfide	7.17	76	208647	40.98	ug/kg 100
25) propionitrile	7.86	54	13778	54.36	ug/kg 100
26) vinyl acetate	7.91	43	177710	51.64	ug/kg 99
27) chloroprene	8.17	53	142591	51.68	ug/kg 98
28) di-isopropyl ether	8.21	45	294032	50.20	ug/kg 97
29) methacrylonitrile	8.33	41	59138	54.69	ug/kg 93
30) 2-butanone	8.23	72	13322	47.28	ug/kg# 80
31) Hexane	8.19	41	109707	46.28	ug/kg# 85
32) 1,1-dichloroethane	7.81	63	158673	47.24	ug/kg 99
33) tert-butyl ethyl ether	8.60	59	301837	53.89	ug/kg 96
34) isobutyl alcohol	8.63	43	47875	277.21	ug/kg 98
35) 2,2-dichloropropane	8.68	77	92547	48.13	ug/kg 99
36) cis-1,2-dichloroethene	8.38	96	113570	47.18	ug/kg 98
37) ethyl acetate	8.64	43	50209	59.01	ug/kg 77

(#)=qualifier out of range (m)=manual integration

K33902.D K042409S.M

Tue Apr 28 10:26:12 2009

MSK

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Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33902.D
 Acq On : 27 Apr 2009 4:52 pm
 Sample : m82136-1ms
 Misc : ms18113,msk1193,11.930,,10,10,1

Vial: 17
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Apr 28 10:24:39 2009

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)

Title : SW-846 Method 8260

Last Update : Mon Apr 27 09:11:43 2009

Response via : Initial Calibration

DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	62261	48.15	ug/kg	98
39) chloroform	8.58	83	177111	48.96	ug/kg	97
41) Tetrahydrofuran	8.92	42	29425	54.44	ug/kg	95
42) 1,1,1-trichloroethane	9.35	97	141983	52.16	ug/kg	96
43) n-Butyl Alcohol	9.34	TIC	348614	237.89	ug/L #	100
45) Cyclohexane	9.62	56	99602	49.27	ug/kg	99
46) carbon tetrachloride	9.71	117	127957	51.32	ug/kg	98
47) 1,1-dichloropropene	9.51	75	123056	48.56	ug/kg	99
48) benzene	9.74	78	373079	47.64	ug/kg	99
49) 1,2-dichloroethane	9.23	62	119344	49.39	ug/kg	94
50) tert-amyl methyl ether	9.85	73	285588	54.69	ug/kg	98
51) heptane	10.21	43	122795	58.14	ug/kg	97
52) 2-Nitropropane	10.33	TIC	1371085m	51.85	ug/L	
53) trichloroethene	10.36	95	107759	50.12	ug/kg	99
54) 1,2-dichloropropane	10.32	63	92203	49.84	ug/kg	100
55) dibromomethane	10.30	93	60669	51.25	ug/kg	97
56) bromodichloromethane	10.41	83	130811	52.25	ug/kg	97
57) Methylcyclohexane	10.88	83	130896	59.80	ug/kg	97
58) 2-chloroethyl vinyl ether	10.78	63	2118	34.78	ug/kg#	100
59) methyl methacrylate	10.50	69	69595	57.91	ug/kg	93
60) 1,4-dioxane	10.54	88	5145	279.01	ug/kg#	100
61) cis-1,3-dichloropropene	11.03	75	142455	50.55	ug/kg	98
63) 4-methyl-2-pentanone	11.12	43	93001	60.90	ug/kg	99
64) toluene	11.81	92	234674	51.31	ug/kg	98
65) trans-1,3-dichloropropene	11.45	75	119534	50.96	ug/kg	97
66) 1,1,2-trichloroethane	11.62	83	74758	53.24	ug/kg#	83
67) ethyl methacrylate	11.82	69	122155	64.67	ug/kg	91
69) tetrachloroethene	12.55	166	115004	48.74	ug/kg	98
70) 1,3-dichloropropane	11.85	76	139199	49.70	ug/kg	97
71) dibromochloromethane	12.15	129	109017	52.81	ug/kg	99
72) 1,2-dibromoethane	12.40	107	97160	51.21	ug/kg	96
73) 2-hexanone	11.98	43	67825	60.21	ug/kg	87
74) chlorobenzene	13.23	112	279447	50.41	ug/kg	97
75) 1,1,1,2-tetrachloroethane	13.15	131	105412	50.16	ug/kg	99
76) ethylbenzene	13.40	91	491288	58.94	ug/kg	98
77) m,p-xylene	13.59	106	381276	113.48	ug/kg	96
78) o-xylene	14.00	106	169879	51.49	ug/kg	99
79) styrene	13.93	104	275181	55.16	ug/kg	99
80) bromoform	13.75	173	71507	53.31	ug/kg	99
81) trans-1,4-dichloro-2-buten	14.14	53	42003	81.64	ug/kg#	65
83) isopropylbenzene	14.36	105	434474	63.28	ug/kg	100
85) bromobenzene	14.65	156	128868	50.99	ug/kg	98
86) 1,1,2,2-tetrachloroethane	14.00	83	114777	54.91	ug/kg	90
87) 1,2,3-trichloropropane	14.15	75	125881	54.47	ug/kg	100
88) n-propylbenzene	14.81	91	617595	71.76	ug/kg	99
89) 2-chlorotoluene	14.93	91	324931	57.15	ug/kg	94
90) 4-chlorotoluene	15.00	91	296336	52.69	ug/kg	93
91) 1,3,5-trimethylbenzene	15.08	105	648953	99.73	ug/kg	99
92) tert-butylbenzene	15.39	91	195582	56.43	ug/kg	98

(#)=qualifier out of range (m)=manual integration

K33902.D K042409S.M

Tue Apr 28 10:26:12 2009

MSK

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Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33902.D Vial: 17
Acq On : 27 Apr 2009 4:52 pm Operator: RobertT
Sample : m82136-1ms Inst : gcms k
Misc : ms18113,msk1193,11.930,,10,10,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:24:39 2009 Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	1193587	179.02	ug/kg	98
94) sec-butylbenzene	15.61	105	572159	70.13	ug/kg	100
95) 1,3-dichlorobenzene	15.72	146	246298	52.16	ug/kg	98
96) p-isopropyltoluene	15.78	119	407401	55.62	ug/kg	99
97) 1,4-dichlorobenzene	15.78	146	251293	50.76	ug/kg	96
98) 1,2-dichlorobenzene	16.15	146	247960	52.27	ug/kg	97
99) n-butylbenzene	16.20	91	515757	84.54	ug/kg	62
100) 1,2-dibromo-3-chloropropan	16.63	75	18209	59.27	ug/kg	78
101) 1,2,4-trichlorobenzene	18.03	180	134625	56.43	ug/kg	97
102) hexachlorobutadiene	18.34	225	84928	64.35	ug/kg	93
103) naphthalene	18.32	128	571646	105.95	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	99366	53.99	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33902.D K042409S.M Tue Apr 28 10:26:12 2009 MSK

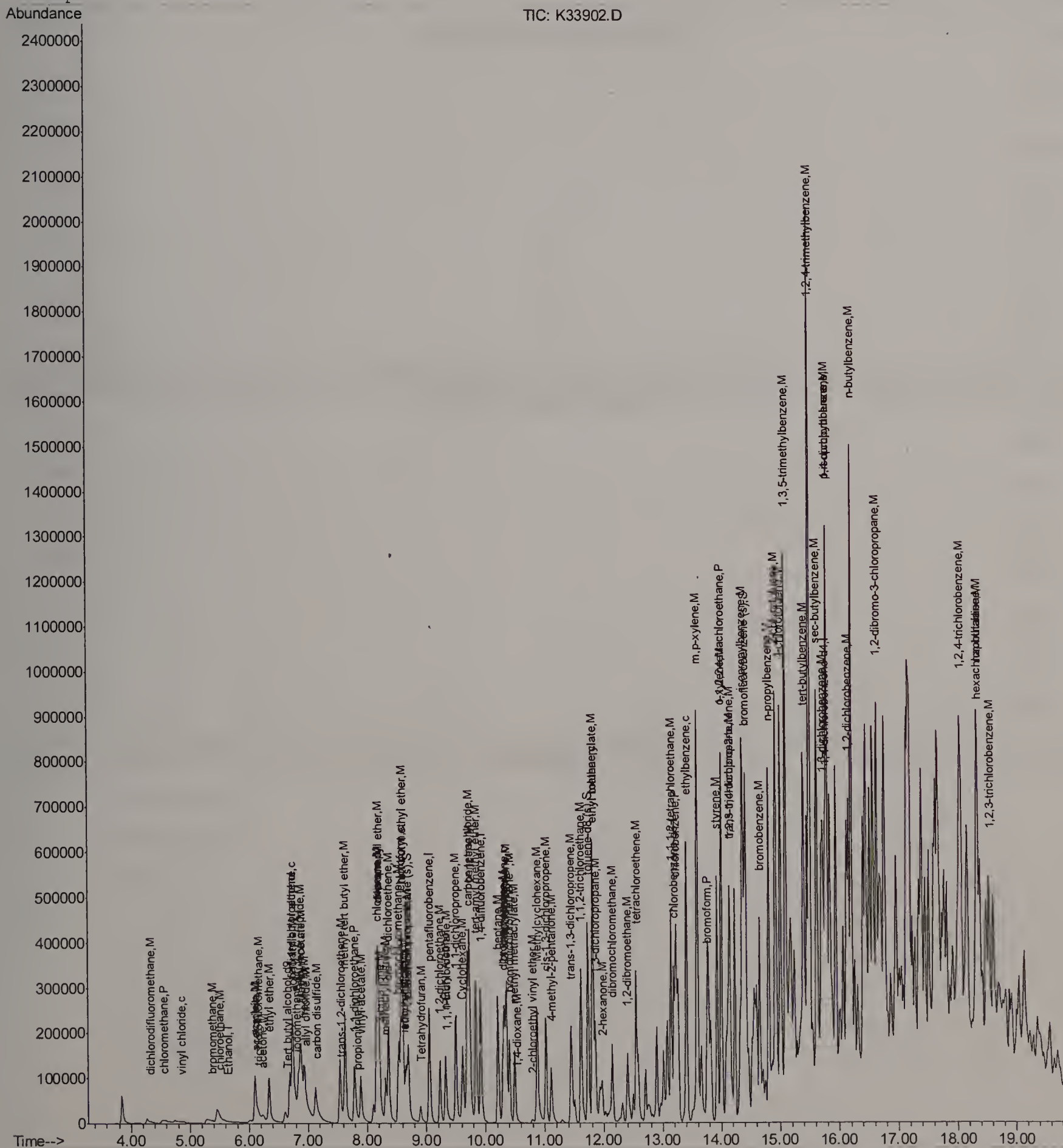
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33902.D
Acq On : 27 Apr 2009 4:52 pm
Sample : m82136-lms
Misc : ms18113,msk1193,11.930,,10,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:25 2009

Vial: 17
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration



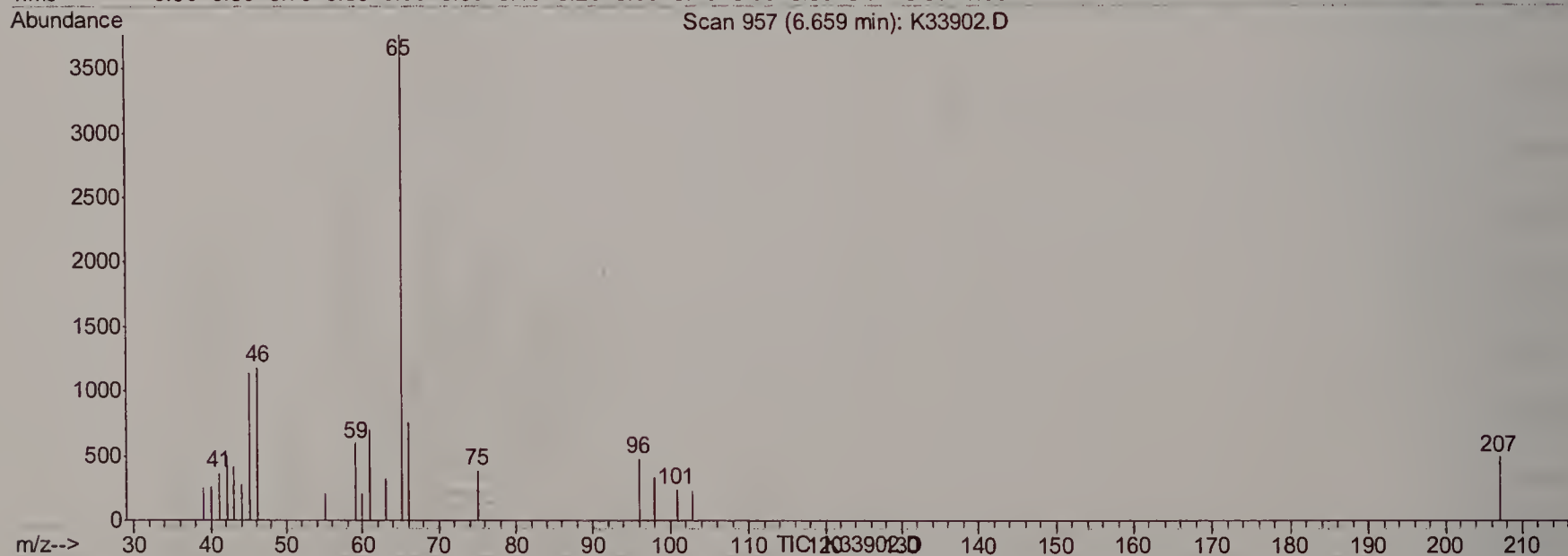
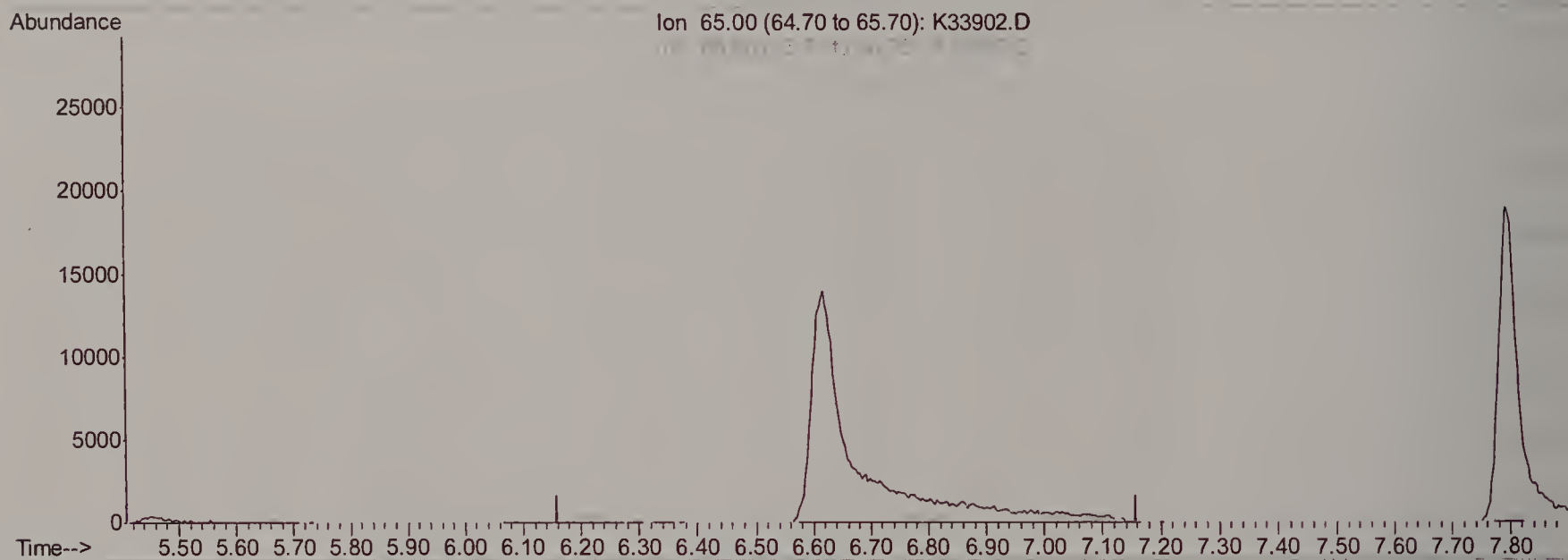
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33902.D
Acq On : 27 Apr 2009 4:52 pm
Sample : m82136-lms
Misc : ms18113,msk1193,11.930,,10,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:24 2009

Vial: 17
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(1) Tert butyl alcohol-d9

6.66min 0.00ug/kg

response 0

Ion	Exp%	Act%
65.00	100	0.00
66.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

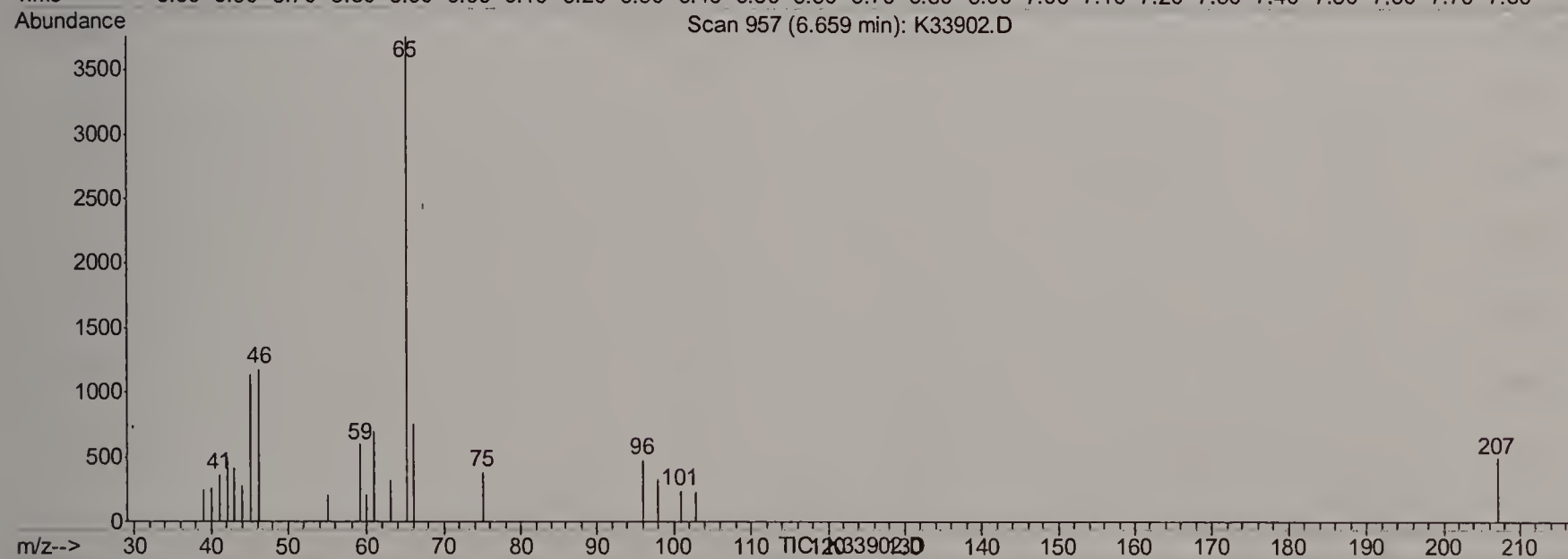
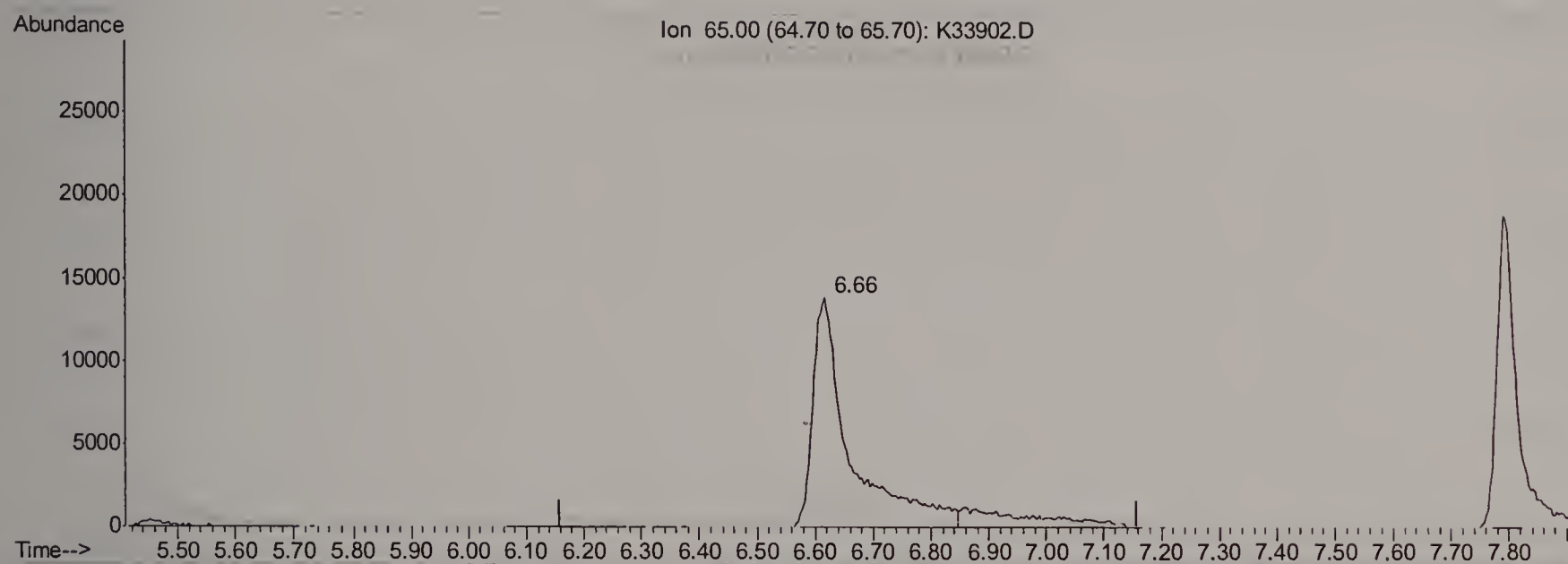
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33902.D
Acq On : 27 Apr 2009 4:52 pm
Sample : m82136-1ms
Misc : ms18113,msk1193,11.930,,10,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:24 2009

Vial: 17
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(1) Tert butyl alcohol-d9

6.66min 500.00ug/kg m

response 62126

Ion	Exp%	Act%
65.00	100	100
66.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

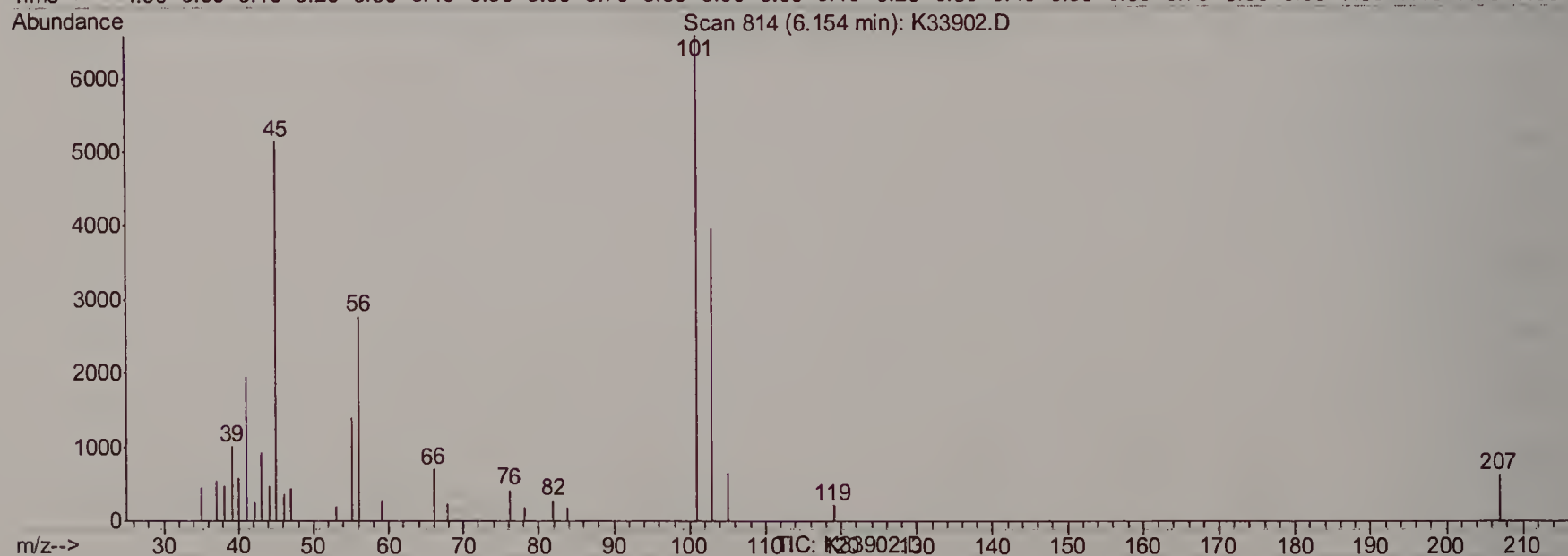
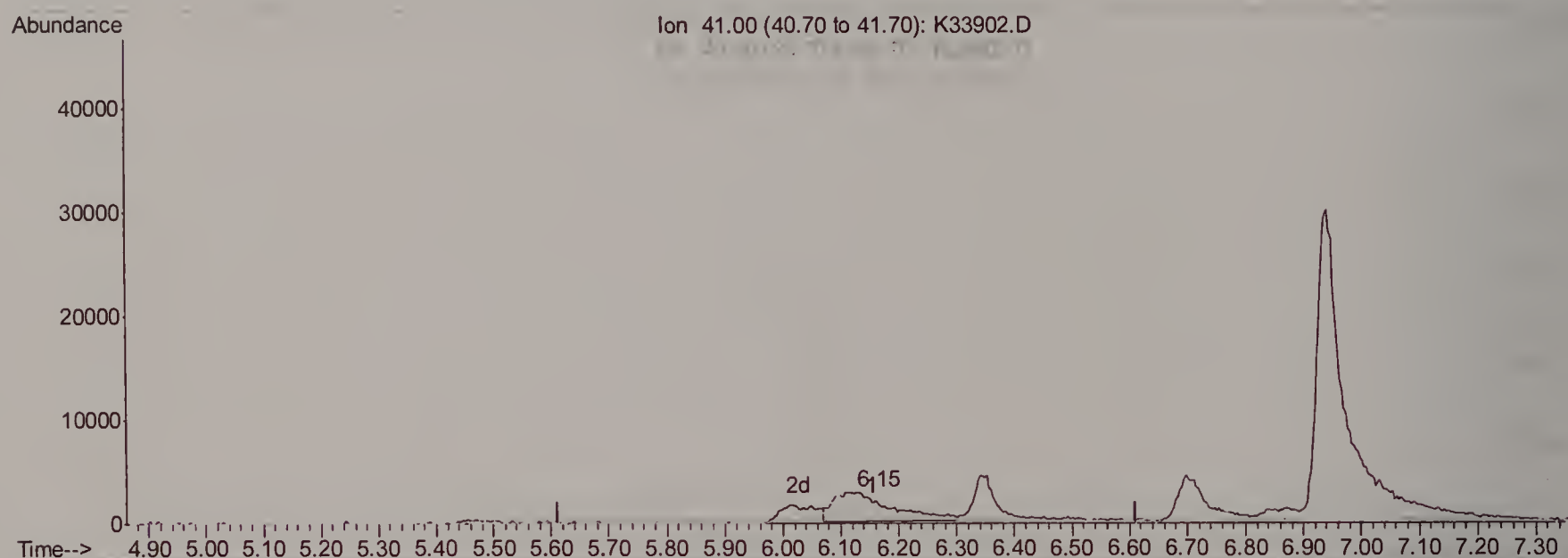
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33902.D
Acq On : 27 Apr 2009 4:52 pm
Sample : m82136-lms
Misc : ms18113,msk1193,11.930,,10,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:24 2009

Vial: 17
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.15min 33.18ug/kg

response 20502

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	24.76
39.00	58.00	49.74
0.00	0.00	0.00

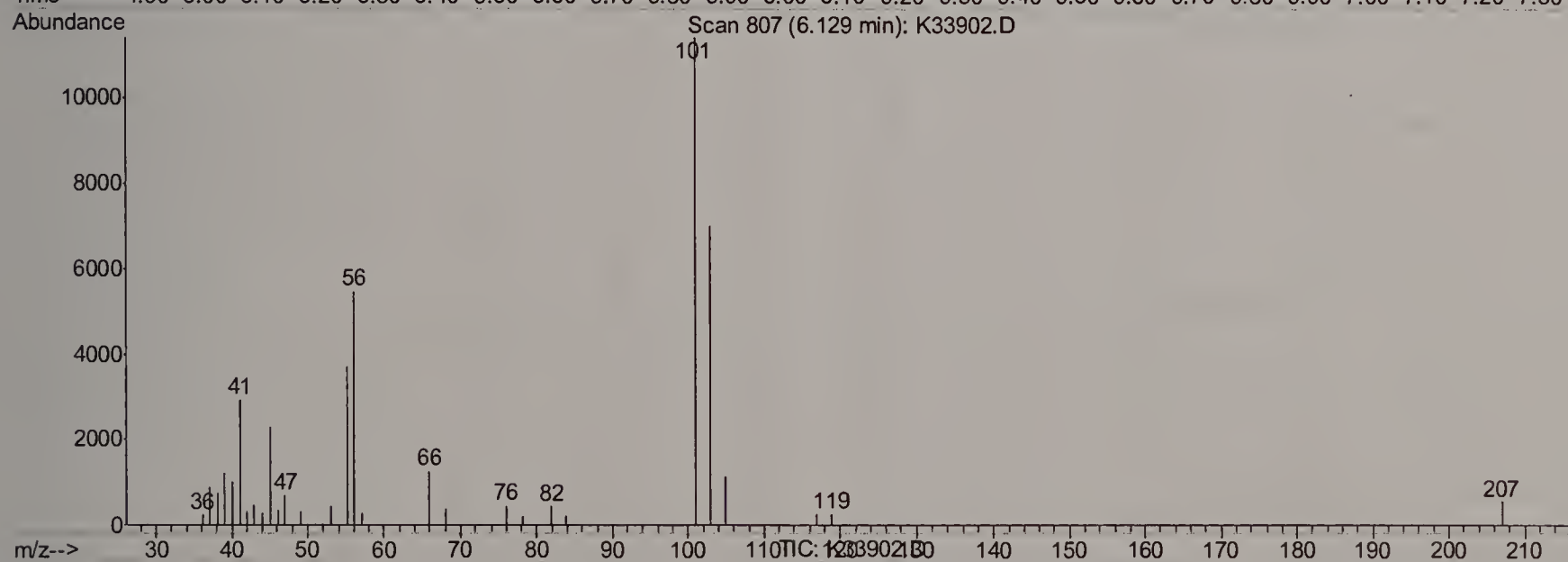
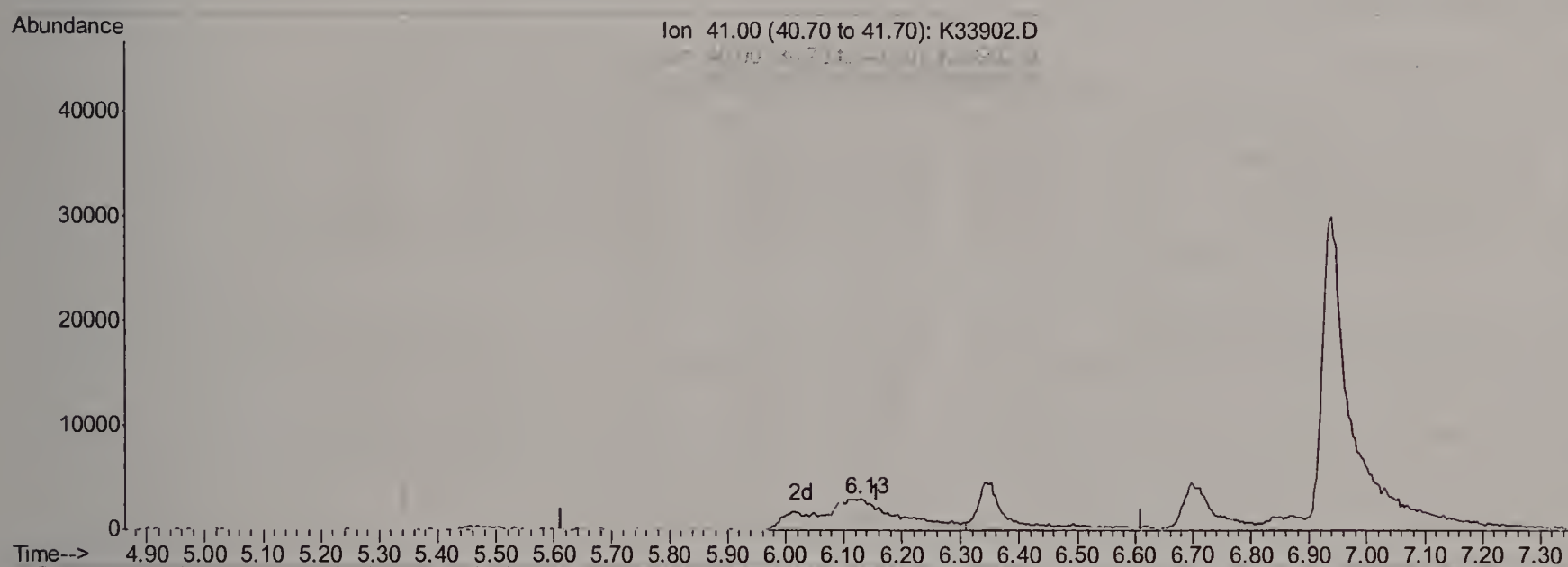
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33902.D
Acq On : 27 Apr 2009 4:52 pm
Sample : m82136-1ms
Misc : ms18113,msk1193,11.930,,10,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:25 2009

Vial: 17
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 50.22ug/kg m

response 30676

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	34.58
39.00	58.00	41.37
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33903.D
 Acq On : 27 Apr 2009 5:19 pm
 Sample : m82136-1msd
 Misc : ms18113,msk1193,11.930,,10,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 28 10:26:40 2009

Vial: 18
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.65	65	66474m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	215807	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	288059	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	114479	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	139023	50.00	ug/kg	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	Dev(Min)
40) dibromofluoromethane (s)	8.70	113	100042	47.13	ug/kg	0.00
Spiked Amount 50.000	Range 85 - 129		Recovery =	94.26%		
62) toluene-d8 (s)	11.73	98	328020	48.31	ug/kg	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery =	96.62%		
84) bromofluorobenzene (s)	14.42	95	111795	46.14	ug/kg	0.00
Spiked Amount 50.000	Range 80 - 119		Recovery =	92.28%		

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) tertiary butyl alcohol	6.72	59	97689	583.30	ug/kg	91
3) Ethanol	5.62	45	97857	4810.85	ug/kg#	100
5) dichlorodifluoromethane	4.34	85	32984	26.77	ug/kg	96
6) chloromethane	4.57	50	26249	26.56	ug/kg	91
7) vinyl chloride	4.85	62	25584m	39.73	ug/kg	
8) bromomethane	5.39	96	38004	38.11	ug/kg	86
9) chloroethane	5.51	64	34839	37.49	ug/kg	91
10) ethyl ether	6.36	59	71963	45.81	ug/kg	95
11) acetonitrile	6.13	41	30751m	50.01	ug/kg	
12) trichlorofluoromethane	6.18	101	99807m	38.37	ug/kg	
13) freon-113	6.97	101	65528m	48.10	ug/kg	
14) acrolein	6.11	56	70197	230.12	ug/kg	100
15) 1,1-dichloroethene	6.76	96	70560	42.78	ug/kg	93
16) acetone	6.25	43	21331	40.06	ug/kg	93
17) Methyl Acetate	6.90	43	121330	45.59	ug/kg	97
18) methylene chloride	6.89	84	87409	44.51	ug/kg	97
19) methyl tert butyl ether	7.64	73	282797	50.21	ug/kg	99
20) acrylonitrile	6.76	53	189069	264.70	ug/kg	99
21) allyl chloride	6.98	41	104494	40.89	ug/kg	90
22) trans-1,2-dichloroethene	7.58	96	99858	44.79	ug/kg	92
23) iodomethane	6.81	142	131491m	40.96	ug/kg	
24) carbon disulfide	7.17	76	200031	39.03	ug/kg	99
25) propionitrile	7.85	54	14279	55.92	ug/kg	100
26) vinyl acetate	7.91	43	180230	52.03	ug/kg	97
27) chloroprene	8.17	53	138788	49.97	ug/kg	97
28) di-isopropyl ether	8.21	45	289654	49.13	ug/kg	96
29) methacrylonitrile	8.33	41	58876	54.09	ug/kg	98
30) 2-butanone	8.23	72	14009	49.51	ug/kg	98
31) Hexane	8.19	41	108533	45.49	ug/kg#	83
32) 1,1-dichloroethane	7.81	63	151149	44.71	ug/kg	99
33) tert-butyl ethyl ether	8.60	59	299099	53.05	ug/kg	97
34) isobutyl alcohol	8.63	43	48578	279.45	ug/kg	87
35) 2,2-dichloropropane	8.68	77	89325	46.15	ug/kg	99
36) cis-1,2-dichloroethene	8.38	96	113695	46.92	ug/kg	99
37) ethyl acetate	8.63	43	51889	60.58	ug/kg	74

(#) = qualifier out of range (m) = manual integration

K33903.D K042409S.M Tue Apr 28 10:28:20 2009 MSK

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33903.D
 Acq On : 27 Apr 2009 5:19 pm
 Sample : m82136-1msd
 Misc : ms18113,msk1193,11.930,,10,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 28 10:26:40 2009

Vial: 18
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00
 Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	62811	48.25	ug/kg	97
39) chloroform	8.58	83	175343	48.15	ug/kg	98
41) Tetrahydrofuran	8.92	42	29176	53.62	ug/kg	97
42) 1,1,1-trichloroethane	9.35	97	139010	50.74	ug/kg	99
43) n-Butyl Alcohol	9.34	TIC	330792	224.25	ug/L #	100
45) Cyclohexane	9.62	56	95495	46.75	ug/kg	97
46) carbon tetrachloride	9.71	117	125175	49.69	ug/kg	89
47) 1,1-dichloropropene	9.51	75	119996	46.86	ug/kg	98
48) benzene	9.74	78	361091	45.63	ug/kg	100
49) 1,2-dichloroethane	9.23	62	119810	49.07	ug/kg	95
50) tert-amyl methyl ether	9.85	73	281864	53.42	ug/kg	99
51) heptane	10.21	43	121644	56.99	ug/kg	98
52) 2-Nitropropane	10.33	TIC	1359667m	50.82	ug/L	
53) trichloroethene	10.36	95	106445	48.99	ug/kg	97
54) 1,2-dichloropropane	10.32	63	91031	48.70	ug/kg	98
55) dibromomethane	10.30	93	61085	51.07	ug/kg	92
56) bromodichloromethane	10.41	83	130616	51.63	ug/kg	96
57) Methylcyclohexane	10.88	83	127199	57.51	ug/kg	98
58) 2-chloroethyl vinyl ether	10.78	63	2323	37.20	ug/kg#	100
59) methyl methacrylate	10.50	69	71164	58.61	ug/kg	99
60) 1,4-dioxane	10.53	88	5306	284.56	ug/kg#	100
61) cis-1,3-dichloropropene	11.03	75	139410	48.96	ug/kg	96
63) 4-methyl-2-pentanone	11.12	43	93229	60.42	ug/kg	99
64) toluene	11.81	92	228712	49.49	ug/kg	100
65) trans-1,3-dichloropropene	11.45	75	119064	50.23	ug/kg	95
66) 1,1,2-trichloroethane	11.62	83	74813	52.73	ug/kg#	82
67) ethyl methacrylate	11.82	69	118022	61.83	ug/kg	91
69) tetrachloroethene	12.55	166	112336	48.34	ug/kg	96
70) 1,3-dichloropropane	11.85	76	139566	50.60	ug/kg	96
71) dibromochloromethane	12.15	129	110548	54.37	ug/kg	99
72) 1,2-dibromoethane	12.40	107	96169	51.47	ug/kg	96
73) 2-hexanone	11.98	43	68665	61.89	ug/kg	81
74) chlorobenzene	13.23	112	271083	49.65	ug/kg	96
75) 1,1,1,2-tetrachloroethane	13.15	131	103126	49.83	ug/kg	98
76) ethylbenzene	13.40	91	477065	58.11	ug/kg	99
77) m,p-xylene	13.59	106	369982	111.81	ug/kg	100
78) o-xylene	14.00	106	163992	50.47	ug/kg	98
79) styrene	13.93	104	266404	54.22	ug/kg	99
80) bromoform	13.75	173	70268	53.19	ug/kg	97
81) trans-1,4-dichloro-2-buten	14.14	53	41745	82.38	ug/kg#	60
83) isopropylbenzene	14.36	105	415417	61.09	ug/kg	98
85) bromobenzene	14.65	156	125869	50.28	ug/kg	98
86) 1,1,2,2-tetrachloroethane	14.00	83	112481	54.33	ug/kg	90
87) 1,2,3-trichloropropane	14.15	75	123524	53.97	ug/kg	97
88) n-propylbenzene	14.81	91	588397	69.03	ug/kg	99
89) 2-chlorotoluene	14.93	91	312550	55.51	ug/kg	94
90) 4-chlorotoluene	15.00	91	286956	51.52	ug/kg	98
91) 1,3,5-trimethylbenzene	15.09	105	620379	96.26	ug/kg	98
92) tert-butylbenzene	15.39	91	186497	54.33	ug/kg	98

(#) = qualifier out of range (m) = manual integration

K33903.D K042409S.M

Tue Apr 28 10:28:20 2009

MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33903.D Vial: 18
Acq On : 27 Apr 2009 5:19 pm Operator: RobertT
Sample : m82136-1msd Inst : gcms k
Misc : ms18113,msk1193,11.930,,10,10,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:26:40 2009 Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.50	105	1154215	174.80	ug/kg	98
94) sec-butylbenzene	15.61	105	546197	67.60	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	235851	50.43	ug/kg	98
96) p-isopropyltoluene	15.78	119	391360	53.94	ug/kg	98
97) 1,4-dichlorobenzene	15.78	146	243313	49.62	ug/kg	97
98) 1,2-dichlorobenzene	16.15	146	240112	51.11	ug/kg	98
99) n-butylbenzene	16.20	91	492589	81.52	ug/kg	63
100) 1,2-dibromo-3-chloropropan	16.63	75	18298	60.14	ug/kg#	76
101) 1,2,4-trichlorobenzene	18.03	180	131094	55.48	ug/kg	97
102) hexachlorobutadiene	18.34	225	80860	61.71	ug/kg	95
103) naphthalene	18.32	128	562336	105.23	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	98975	54.30	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33903.D K042409S.M Tue Apr 28 10:28:20 2009 MSK

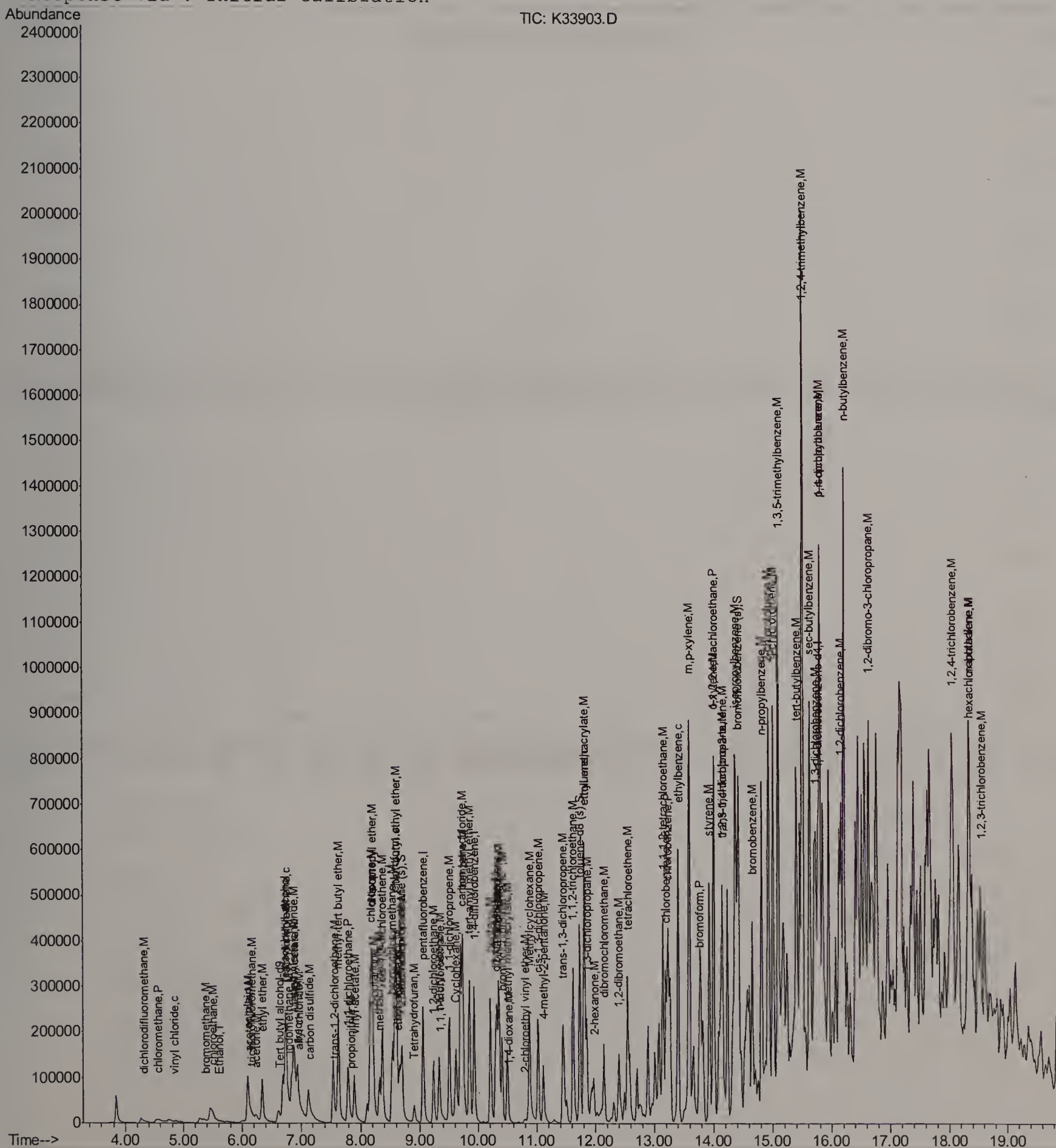
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33903.D
Acq On : 27 Apr 2009 5:19 pm
Sample : m82136-1msd
Misc : ms18113,msk1193,11.930,,10,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:27 2009

Vial: 18
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration



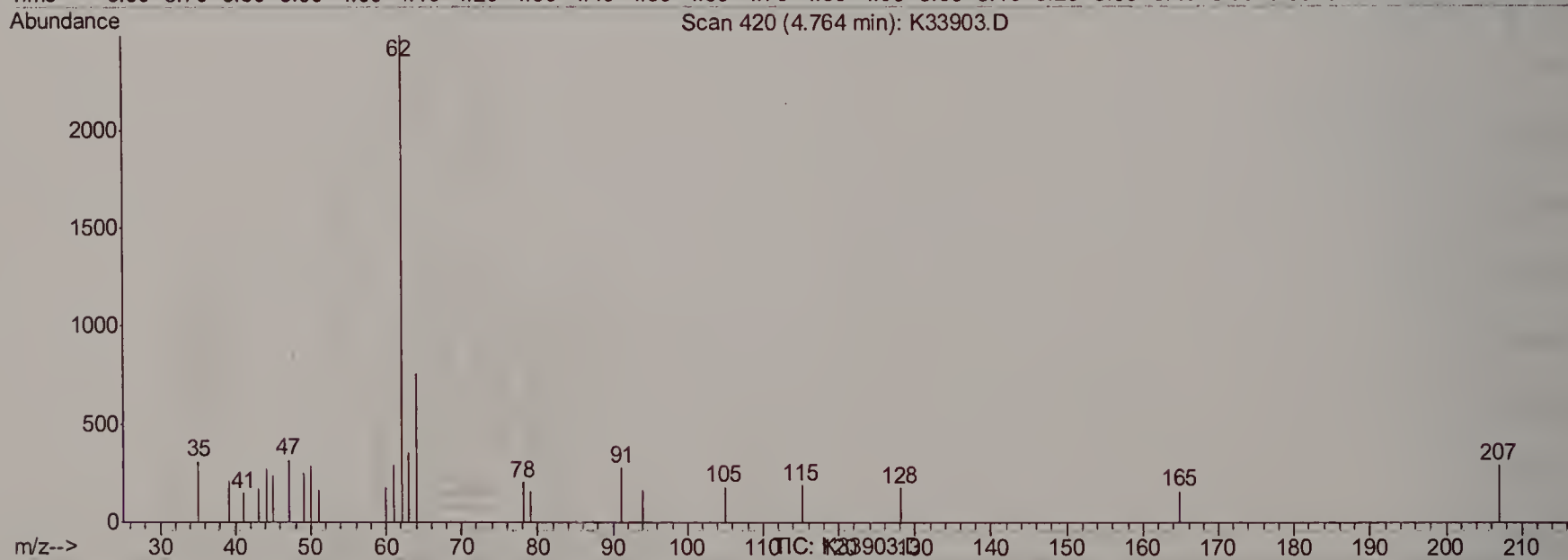
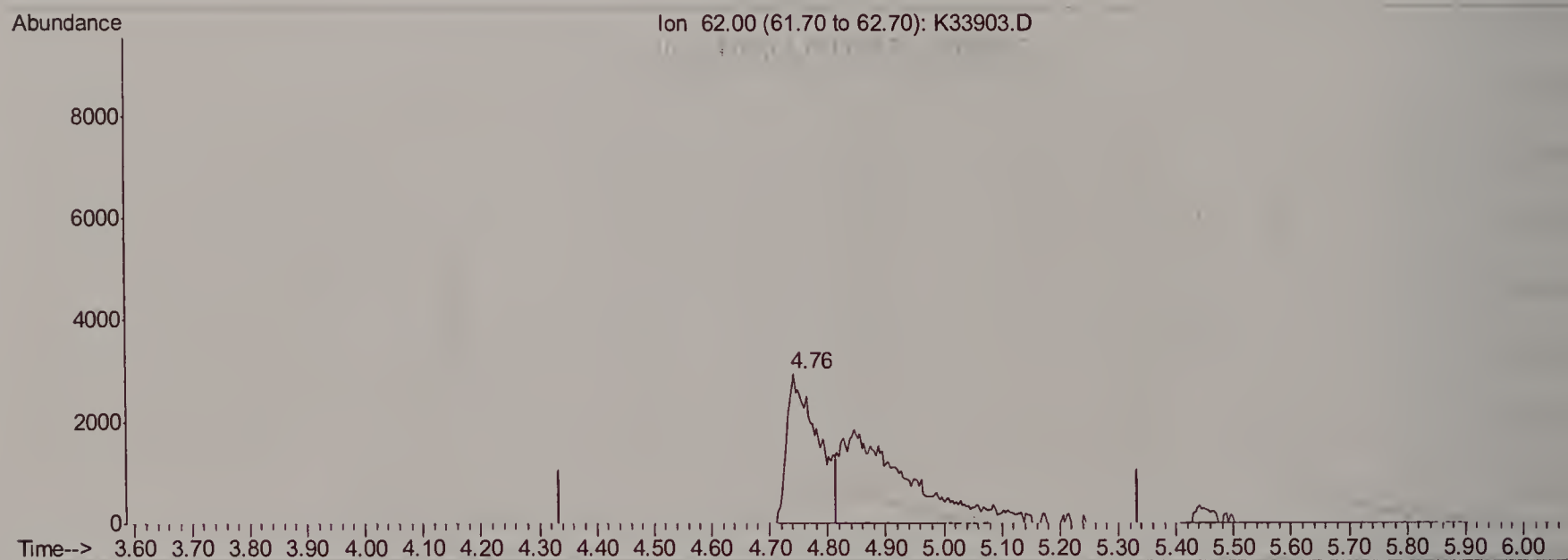
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33903.D
Acq On : 27 Apr 2009 5:19 pm
Sample : m82136-1msd
Misc : ms18113,msk1193,11.930,,10,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:26 2009

Vial: 18
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(7) vinyl chloride (c)

4.76min 16.63ug/kg

response 10708

Ion	Exp%	Act%
62.00	100	100
64.00	34.60	30.48
0.00	0.00	0.00
0.00	0.00	0.00

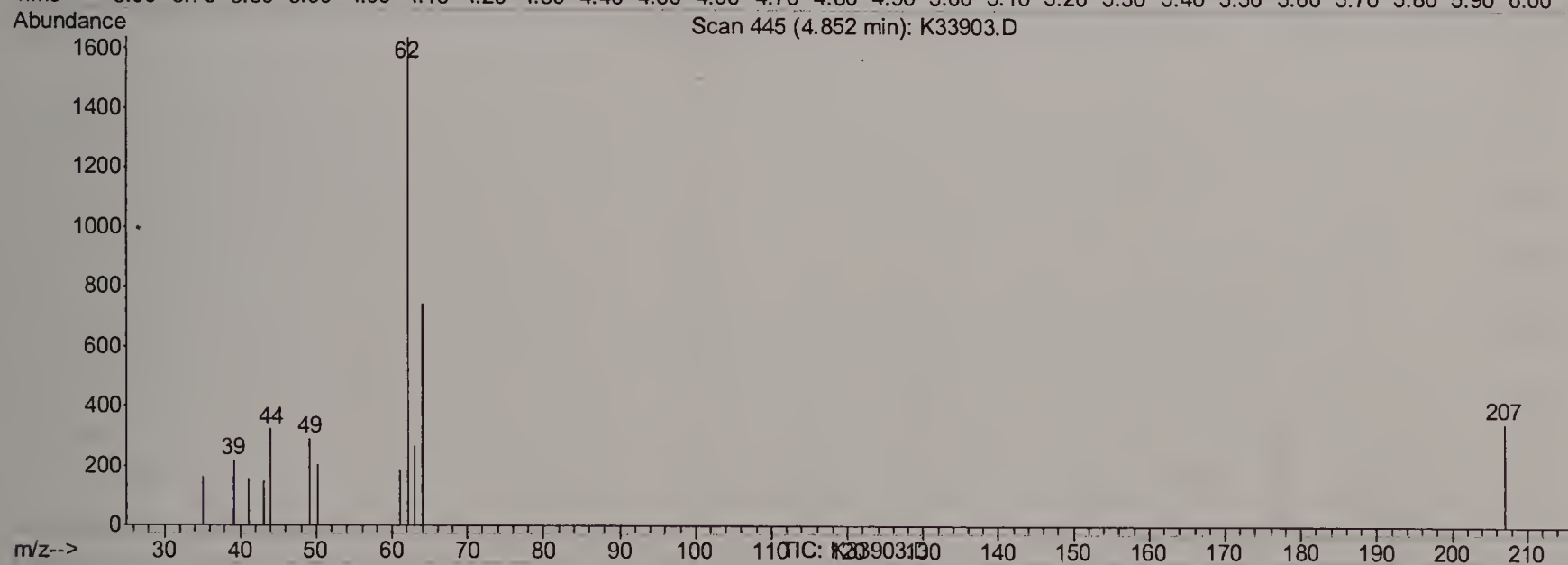
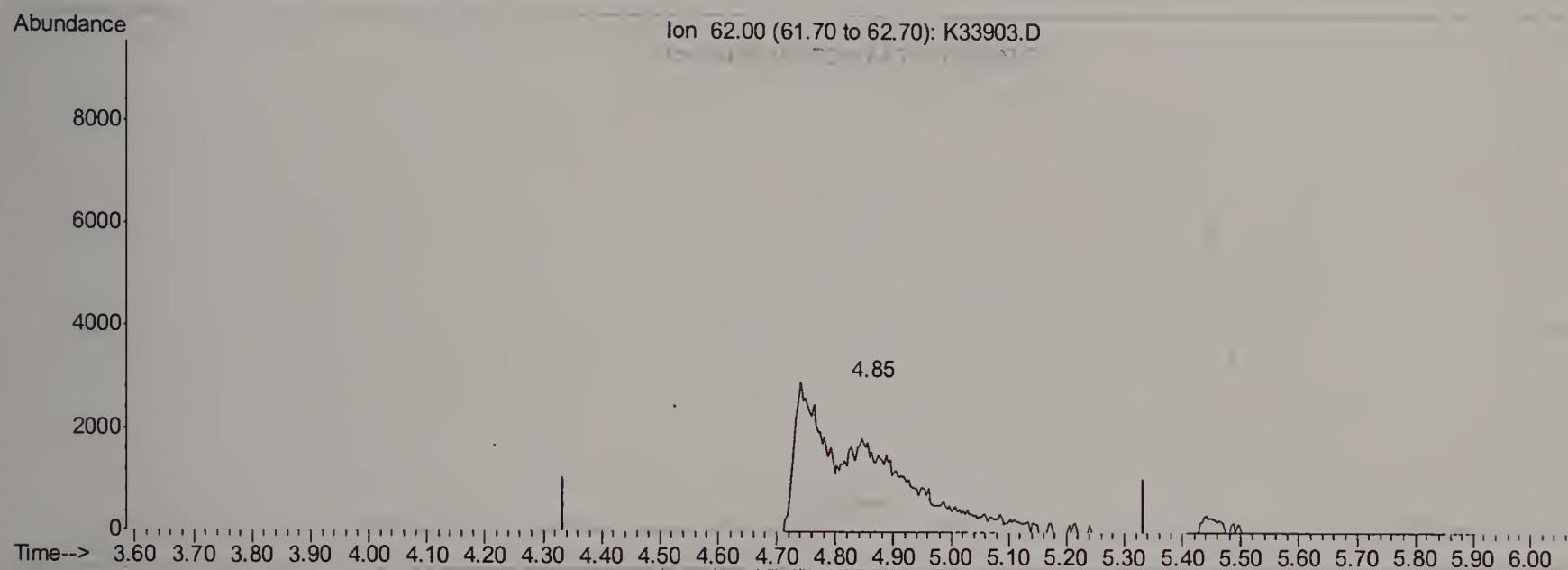
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33903.D
Acq On : 27 Apr 2009 5:19 pm
Sample : m82136-lmsd
Misc : ms18113,msk1193,11.930,,10,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:26 2009

Vial: 18
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(7) vinyl chloride (c)

4.85min 39.73ug/kg m

response 25584

Ion	Exp%	Act%
62.00	100	100
64.00	34.60	45.36
0.00	0.00	0.00
0.00	0.00	0.00

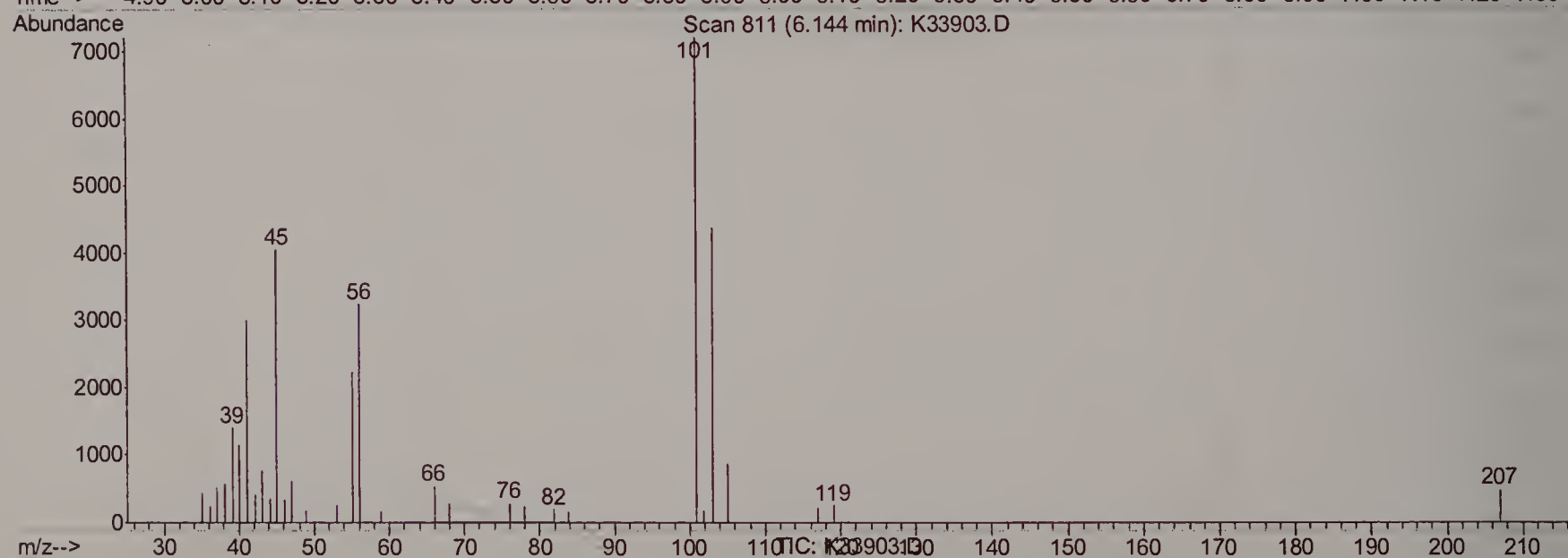
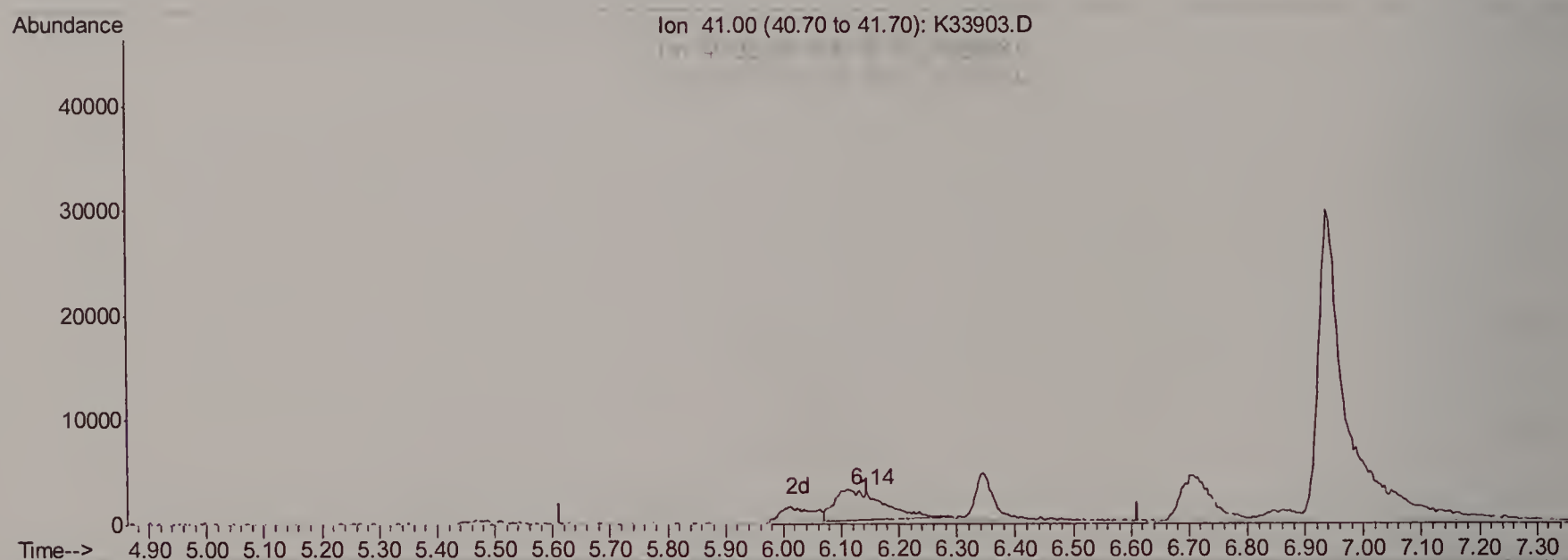
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33903.D
Acq On : 27 Apr 2009 5:19 pm
Sample : m82136-1msd
Misc : ms18113,msk1193,11.930,,10,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:26 2009

Vial: 18
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.14min 28.54ug/kg

response 17849

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	39.16
39.00	58.00	39.28
0.00	0.00	0.00

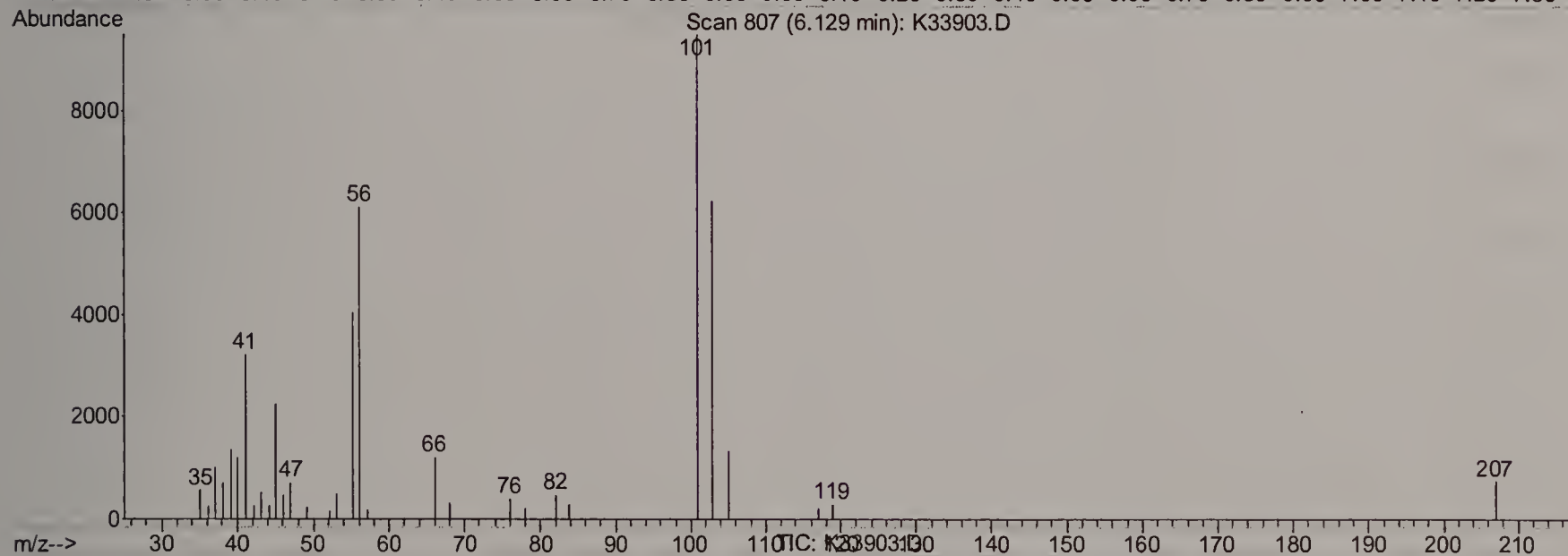
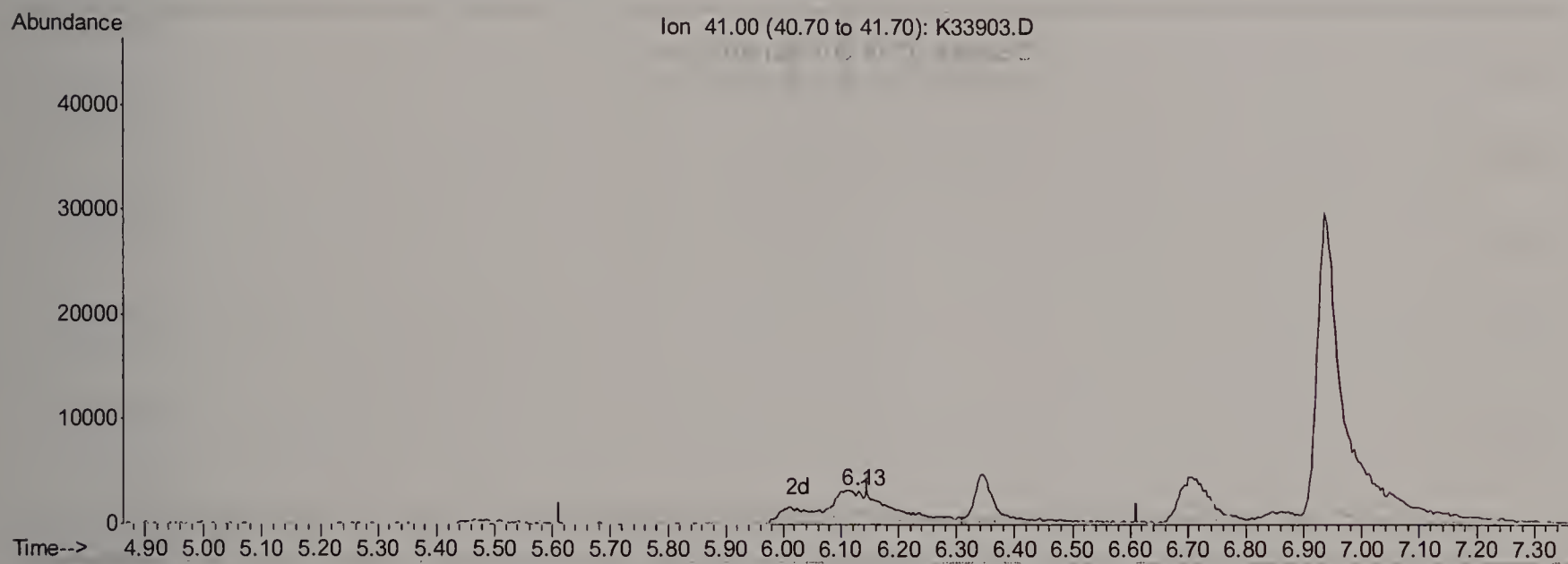
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33903.D
Acq On : 27 Apr 2009 5:19 pm
Sample : m82136-1msd
Misc : ms18113,msk1193,11.930,,10,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 28 10:27 2009

Vial: 18
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 50.01ug/kg m

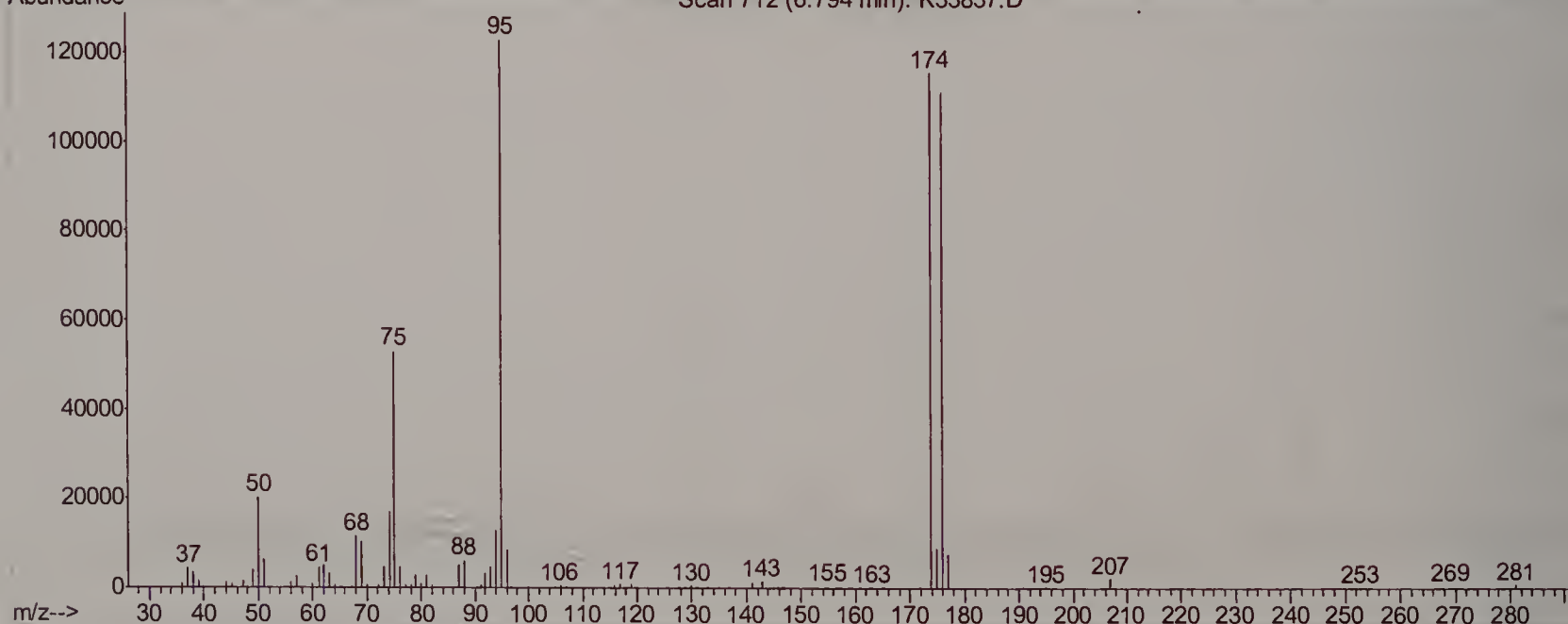
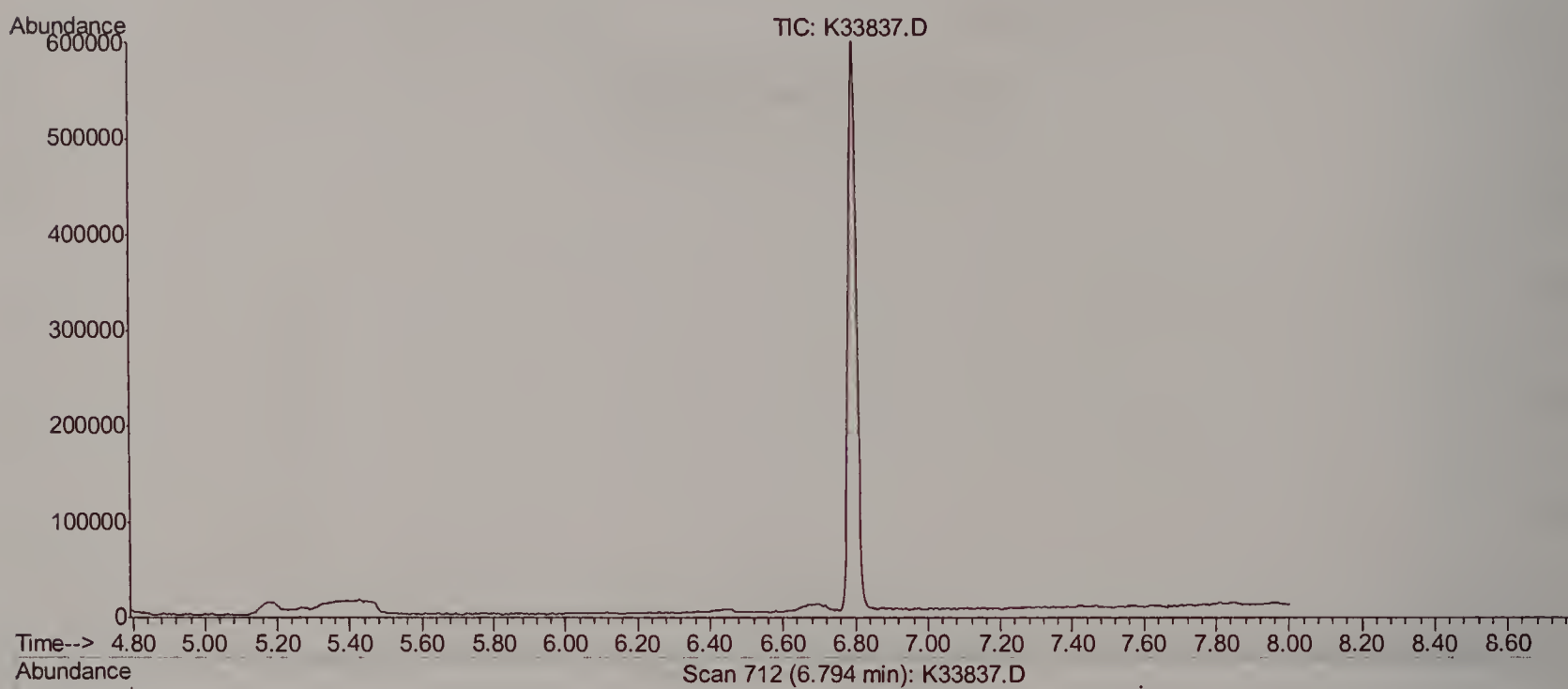
response 30751

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	37.50
39.00	58.00	42.47
0.00	0.00	0.00

SW-846 Method 8260

Data File : C:\MSDCHEM\1\DATA\K33837.D
Acq On : 24 Apr 2009 10:51 am
Sample : bfb
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Method : C:\MSDCHEM\1\METHODS\K040609S.M (RTE Integrator)
Title : SW-846 Method 8260

Vial: 1
Operator: RobertT
Inst : gcms k
Multiplr: 1.00



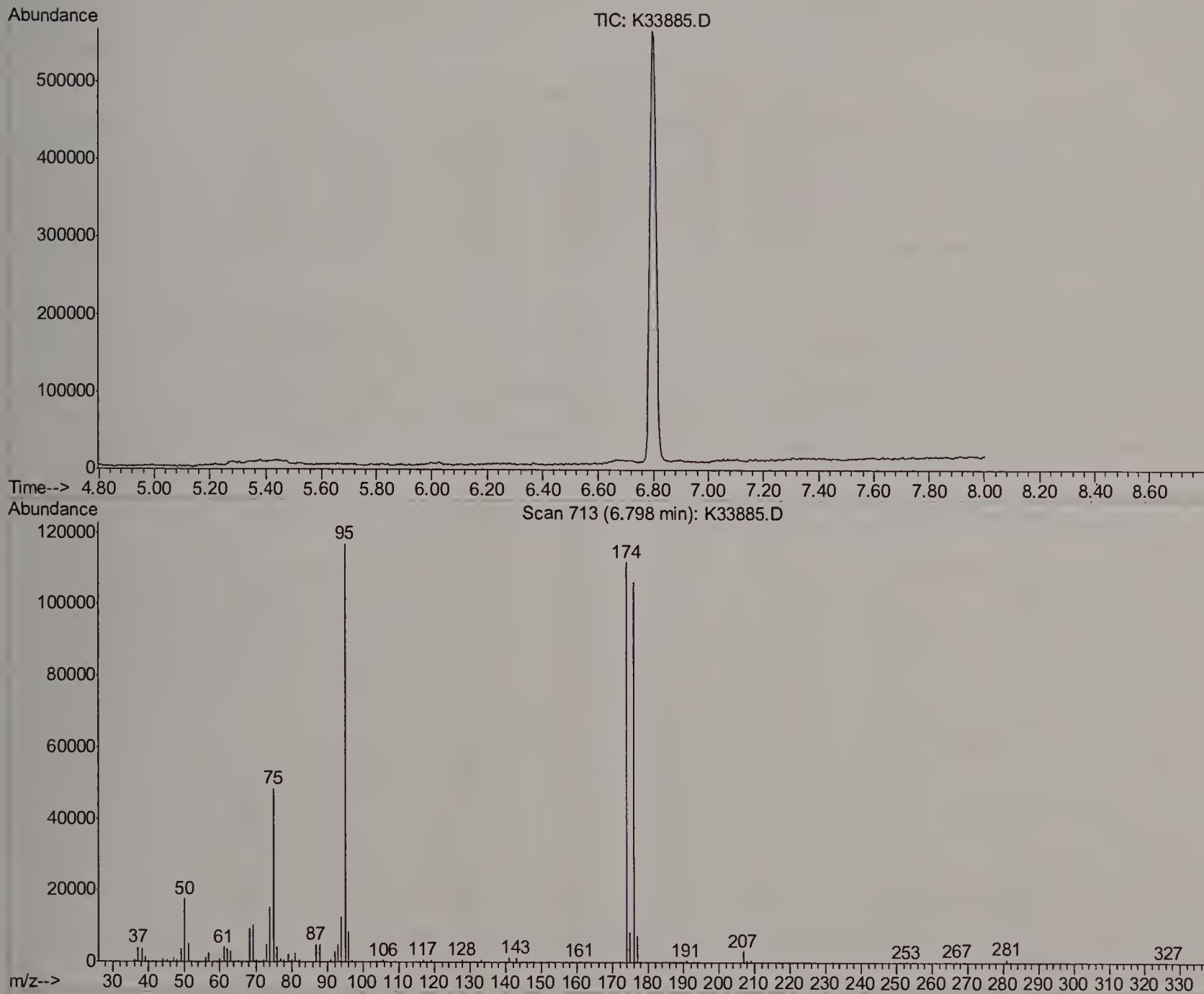
Spectrum Information: Scan 712

Target	Rel. to	Lower	Upper	Rel.	Raw	Result
Mass	Mass	Limit%	Limit%	Abn%	Abn	Pass/Fail
50	95	15	40	16.4	20144	PASS
75	95	30	60	43.1	52896	PASS
95	95	100	100	100.0	122624	PASS
96	95	5	9	7.0	8607	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	93.9	115192	PASS
175	174	5	9	7.5	8678	PASS
176	174	95	101	96.2	110832	PASS
177	176	5	9	6.9	7674	PASS

K33837.D K040609S.M Fri Apr 24 12:12:54 2009 MSK

SW-846 Method 8260

Data File : C:\MSDCHEM\1\DATA\K33885.D Vial: 1
 Acq On : 27 Apr 2009 9:40 am Operator: RobertT
 Sample : bfb Inst : gcms k
 Misc : ms18104,msk1193,10,,100,10,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260



Spectrum Information: Scan 713

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result
50	95	15	40	15.1	17688	PASS
75	95	30	60	41.2	48280	PASS
95	95	100	100	100.0	117072	PASS
96	95	5	9	7.2	8472	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	95.7	112056	PASS
175	174	5	9	7.6	8466	PASS
176	174	95	101	95.1	106512	PASS
177	176	5	9	6.9	7358	PASS

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33843.D
Acq On : 24 Apr 2009 1:30 pm
Sample : ic1192-25
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:08:30 2009

Vial: 2
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K031109S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K031109S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Wed Mar 11 13:07:51 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	49251m	500.00	ug/kg	-0.05
4) pentafluorobenzene	9.06	168	208940	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	283018	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	110728	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.75	152	133057	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	53183	24.44	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	48.88%#
62) toluene-d8 (s)	11.73	98	178692	26.36	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	52.72%#
84) bromofluorobenzene (s)	14.42	95	59551	24.21	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	48.42%#

Target Compounds

						Qvalue
2) tertiary butyl alcohol	6.73	59	32809	263.74	ug/kg	95
3) Ethanol	5.65	45	40727m	2327.26	ug/kg	
5) dichlorodifluoromethane	4.35	85	33174	22.97	ug/kg	98
6) chloromethane	4.57	50	24094	17.44	ug/kg	90
7) vinyl chloride	4.83	62	18878m	26.29	ug/kg	
8) bromomethane	5.37	96	26179	24.18	ug/kg	90
9) chloroethane	5.51	64	25115	22.70	ug/kg	90
10) ethyl ether	6.35	59	40865	24.82	ug/kg	98
11) acetonitrile	6.13	41	15708m	20.27	ug/kg	
12) trichlorofluoromethane	6.18	101	67770m	26.82	ug/kg	
13) freon-113	6.95	101	36535	25.75	ug/kg	85
14) acrolein	6.11	56	38283	108.22	ug/kg	92
15) 1,1-dichloroethene	6.74	96	42516	26.99	ug/kg#	80
16) acetone	6.26	43	13067	20.04	ug/kg	97
17) Methyl Acetate	6.90	43	63042	20.95	ug/kg#	90
18) methylene chloride	6.88	84	49544	24.08	ug/kg	84
19) methyl tert butyl ether	7.64	73	136947	23.56	ug/kg	94
20) acrylonitrile	6.77	53	89435	105.64	ug/kg	96
21) allyl chloride	6.97	41	66461	22.60	ug/kg	93
22) trans-1,2-dichloroethene	7.56	96	56488	26.17	ug/kg	91
23) iodomethane	6.80	142	82195	27.40	ug/kg	97
24) carbon disulfide	7.16	76	130820	24.55	ug/kg	98
25) propionitrile	7.86	54	5714m	18.74	ug/kg	
26) vinyl acetate	7.91	43	86307	20.32	ug/kg	94
27) chloroprene	8.17	53	72916	23.33	ug/kg	92
28) di-isopropyl ether	8.21	45	153467	21.24	ug/kg	94
29) methacrylonitrile	8.33	41	26137	19.15	ug/kg	87
30) 2-butanone	8.23	72	7436	19.73	ug/kg#	76
31) Hexane	8.19	41	62048	22.20	ug/kg#	83
32) 1,1-dichloroethane	7.80	63	86329	22.36	ug/kg	96
33) tert-butyl ethyl ether	8.60	59	144625	22.80	ug/kg	97
34) isobutyl alcohol	8.62	43	21362m	106.21	ug/kg	
35) 2,2-dichloropropane	8.67	77	49341	24.12	ug/kg	98
36) cis-1,2-dichloroethene	8.37	96	59767	23.07	ug/kg	93
37) ethyl acetate	8.62	43	18981	19.61	ug/kg	91

(#) = qualifier out of range (m) = manual integration

K33843.D K042409S.M

Fri Apr 24 15:11:52 2009

MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33843.D
Acq On : 24 Apr 2009 1:30 pm
Sample : ic1192-25
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:08:30 2009

Vial: 2
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K031109S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K031109S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Wed Mar 11 13:07:51 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	32080	25.23	ug/kg#	82
39) chloroform	8.58	83	91739	23.94	ug/kg	98
41) Tetrahydrofuran	8.92	42	12585	17.81	ug/kg	99
42) 1,1,1-trichloroethane	9.34	97	70069	24.53	ug/kg	96
43) n-Butyl Alcohol	9.34	TIC	189952	125.54	ug/L #	100
45) Cyclohexane	9.62	56	51877m	24.10	ug/kg	
46) carbon tetrachloride	9.71	117	66623	27.77	ug/kg	96
47) 1,1-dichloropropene	9.51	75	65397	24.89	ug/kg	95
48) benzene	9.73	78	201177	25.57	ug/kg	97
49) 1,2-dichloroethane	9.23	62	60581	23.02	ug/kg	94
50) tert-amyl methyl ether	9.85	73	138151	25.07	ug/kg	95
51) heptane	10.21	43	55242	22.55	ug/kg	89
52) 2-Nitropropane	10.33	TIC	692932	24.54	ug/L #	98
53) trichloroethene	10.35	95	55693	25.09	ug/kg	95
54) 1,2-dichloropropane	10.32	63	48270	22.18	ug/kg	95
55) dibromomethane	10.29	93	29923	23.91	ug/kg	93
56) bromodichloromethane	10.41	83	62749	24.94	ug/kg	95
57) Methylcyclohexane	10.88	83	58717	26.62	ug/kg	91
58) 2-chloroethyl vinyl ether	10.78	63	1358	11.91	ug/kg#	44
59) methyl methacrylate	10.50	69	29953	22.11	ug/kg	91
60) 1,4-dioxane	10.52	88	1701	93.16	ug/kg#	18
61) cis-1,3-dichloropropene	11.03	75	72952	23.98	ug/kg	97
63) 4-methyl-2-pentanone	11.12	43	37372	18.71	ug/kg	93
64) toluene	11.80	92	122453	26.15	ug/kg	96
65) trans-1,3-dichloropropene	11.45	75	58644	23.45	ug/kg	91
66) 1,1,2-trichloroethane	11.62	83	35846	23.18	ug/kg	94
67) ethyl methacrylate	11.82	69	50216	22.78	ug/kg	97
69) tetrachloroethene	12.55	166	58223	28.18	ug/kg	99
70) 1,3-dichloropropane	11.85	76	68770	24.08	ug/kg	96
71) dibromochloromethane	12.15	129	49419	27.86	ug/kg	98
72) 1,2-dibromoethane	12.40	107	44877	25.36	ug/kg	99
73) 2-hexanone	11.98	43	28300	20.09	ug/kg	99
74) chlorobenzene	13.23	112	134779	26.60	ug/kg	100
75) 1,1,1,2-tetrachloroethane	13.14	131	49481	26.36	ug/kg	99
76) ethylbenzene	13.40	91	206585	26.40	ug/kg	98
77) m,p-xylene	13.59	106	173487	55.97	ug/kg	94
78) o-xylene	14.00	106	84224	27.46	ug/kg	96
79) styrene	13.93	104	124215	27.26	ug/kg	95
80) bromoform	13.75	173	29766	26.46	ug/kg	100
81) trans-1,4-dichloro-2-buten	14.15	53	11659	22.37	ug/kg	97
83) isopropylbenzene	14.36	105	174572	24.56	ug/kg	98
85) bromobenzene	14.65	156	61110	24.48	ug/kg	89
86) 1,1,2,2-tetrachloroethane	14.00	83	50636	21.67	ug/kg	97
87) 1,2,3-trichloropropane	14.15	75	53768	20.61	ug/kg	99
88) n-propylbenzene	14.81	91	214592	24.08	ug/kg	98
89) 2-chlorotoluene	14.93	91	139074	23.32	ug/kg	97
90) 4-chlorotoluene	15.00	91	141160	23.78	ug/kg	99
91) 1,3,5-trimethylbenzene	15.08	105	165814	25.11	ug/kg	99
92) tert-butylbenzene	15.39	91	84777	23.00	ug/kg	97

(#)=qualifier out of range (m)=manual integration

K33843.D K042409S.M

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MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33843.D Vial: 2
Acq On : 24 Apr 2009 1:30 pm Operator: RobertT
Sample : ic1192-25 Inst : gcms k
Misc : ms18077,msk1192,10,,100,10,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:08:30 2009 Quant Results File: K031109S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K031109S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Wed Mar 11 13:07:51 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	169861	25.30	ug/kg	97
94) sec-butylbenzene	15.61	105	204368	24.88	ug/kg	97
95) 1,3-dichlorobenzene	15.72	146	112359	24.11	ug/kg	98
96) p-isopropyltoluene	15.78	119	181318	25.12	ug/kg	98
97) 1,4-dichlorobenzene	15.78	146	117224	24.26	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	112484	24.49	ug/kg	98
99) n-butylbenzene	16.20	91	150076	24.02	ug/kg	95
100) 1,2-dibromo-3-chloropropan	16.63	75	6465	17.89	ug/kg	86
101) 1,2,4-trichlorobenzene	18.03	180	51256	22.28	ug/kg	99
102) hexachlorobutadiene	18.34	225	33868	27.11	ug/kg	94
103) naphthalene	18.32	128	102280	16.54	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	36345	20.88	ug/kg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33843.D K042409S.M Fri Apr 24 15:11:52 2009 MSK

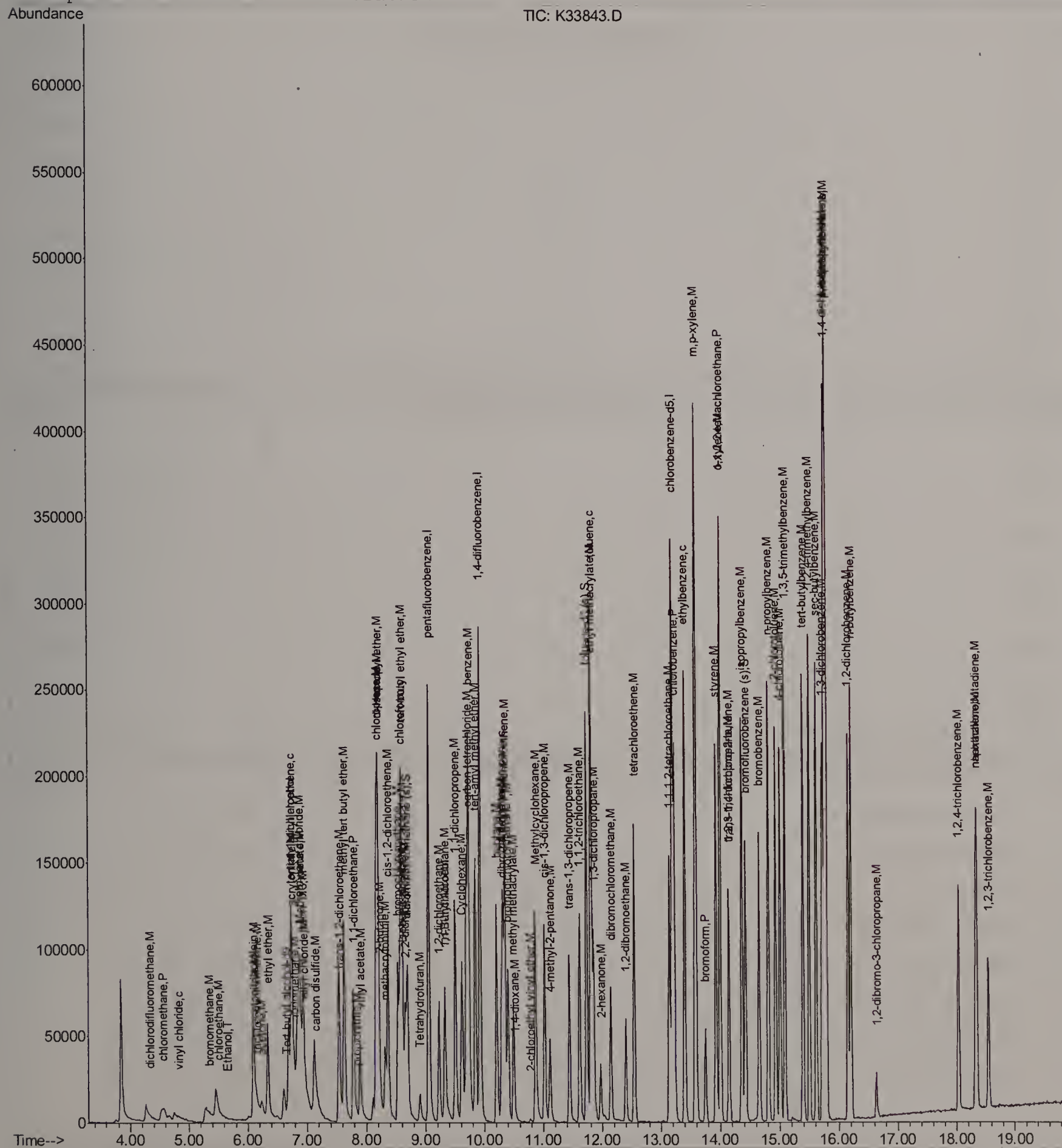
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33843.D
Acq On : 24 Apr 2009 1:30 pm
Sample : ic1192-25
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:09 2009

Vial: 2
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K031109S.RES

```
Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Fri Apr 24 15:10:53 2009
Response via  : Initial Calibration
```



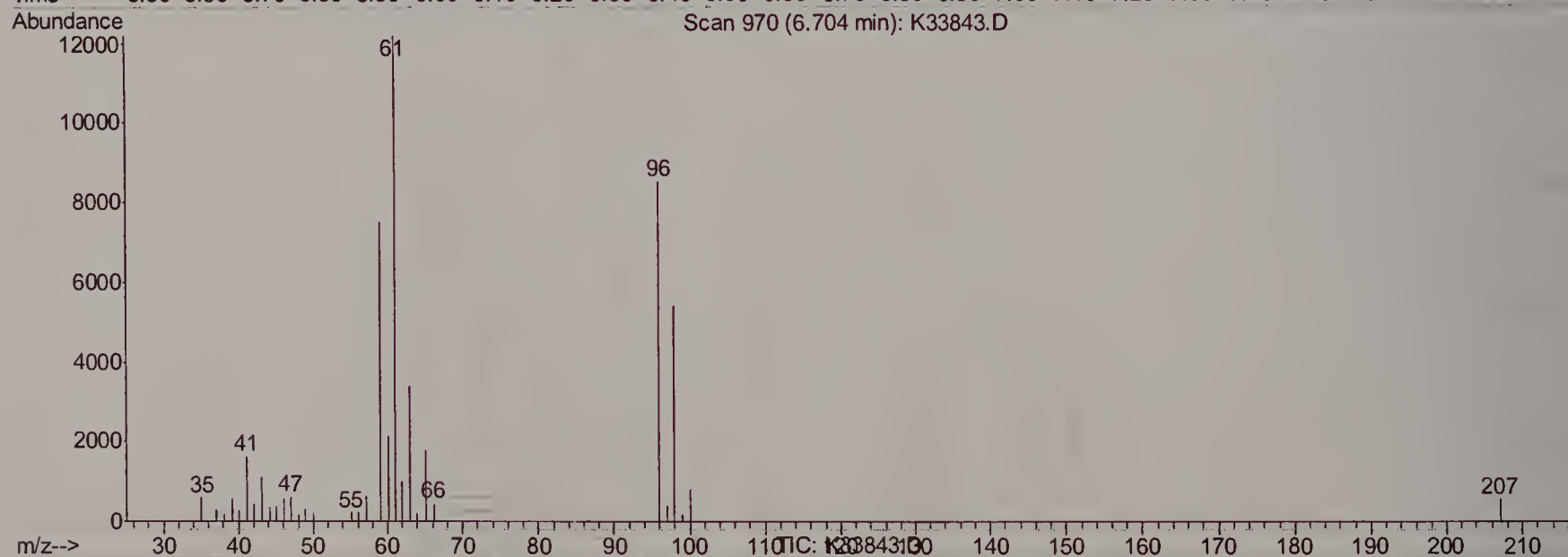
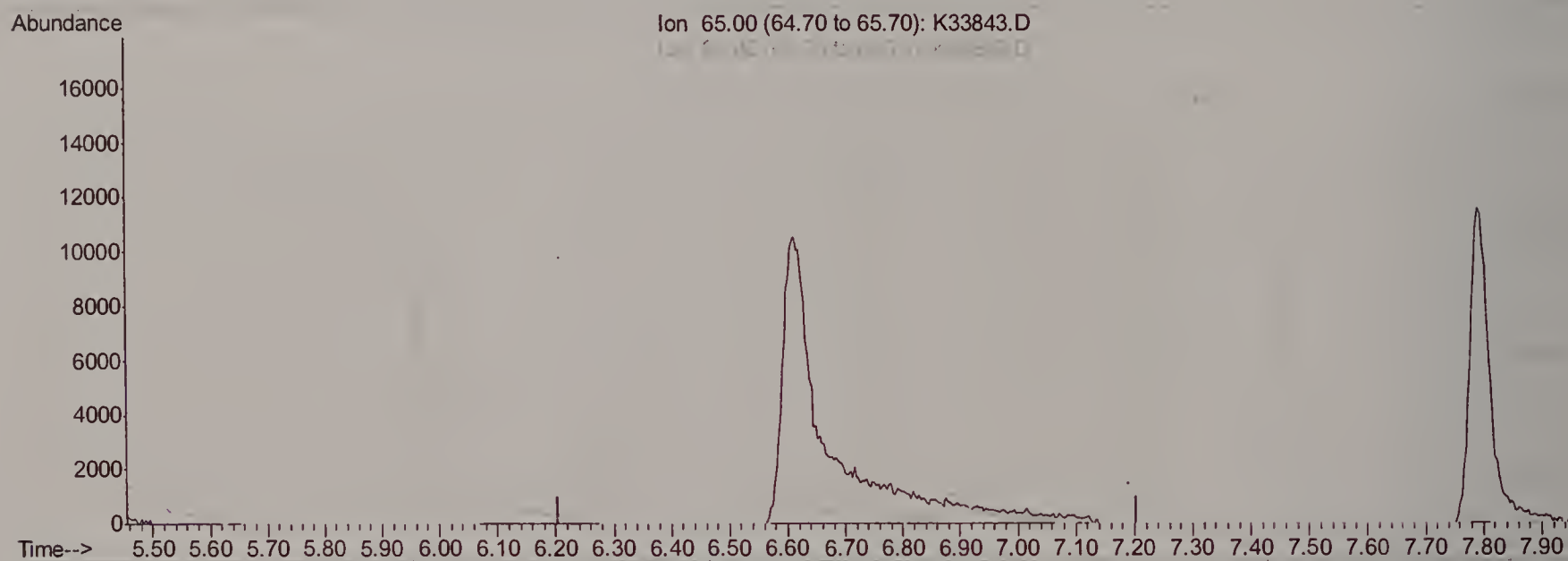
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33843.D
Acq On : 24 Apr 2009 1:30 pm
Sample : ic1192-25
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:08 2009

Vial: 2
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K031109S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Wed Mar 11 13:07:51 2009
Response via : Multiple Level Calibration



(1) Tert butyl alcohol-d9

6.70min 0.00ug/kg

response 0

Ion	Exp%	Act%
65.00	100	0.00
66.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

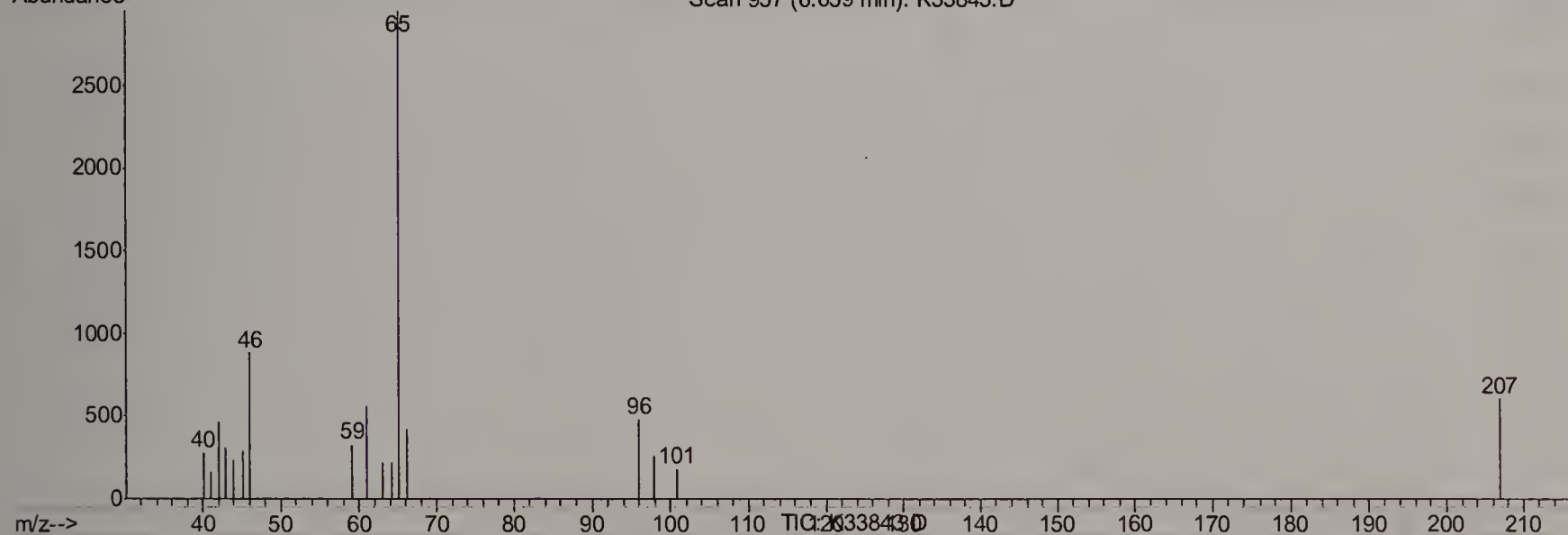
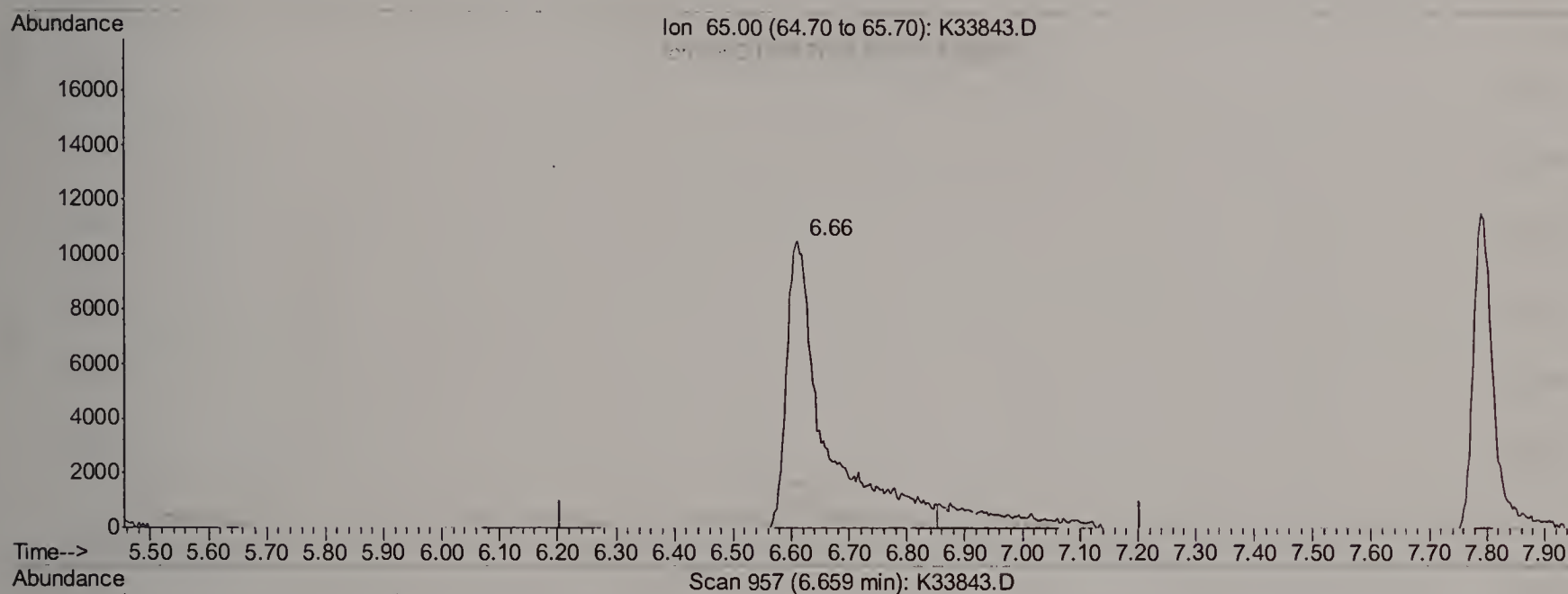
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33843.D
 Acq On : 24 Apr 2009 1:30 pm
 Sample : ic1192-25
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 24 15:08 2009

Vial: 2
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K031109S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Wed Mar 11 13:07:51 2009
 Response via : Multiple Level Calibration



(1) Tert butyl alcohol-d9

6.66min 500.00ug/kg m

response 49251

Ion	Exp%	Act%
65.00	100	100
66.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

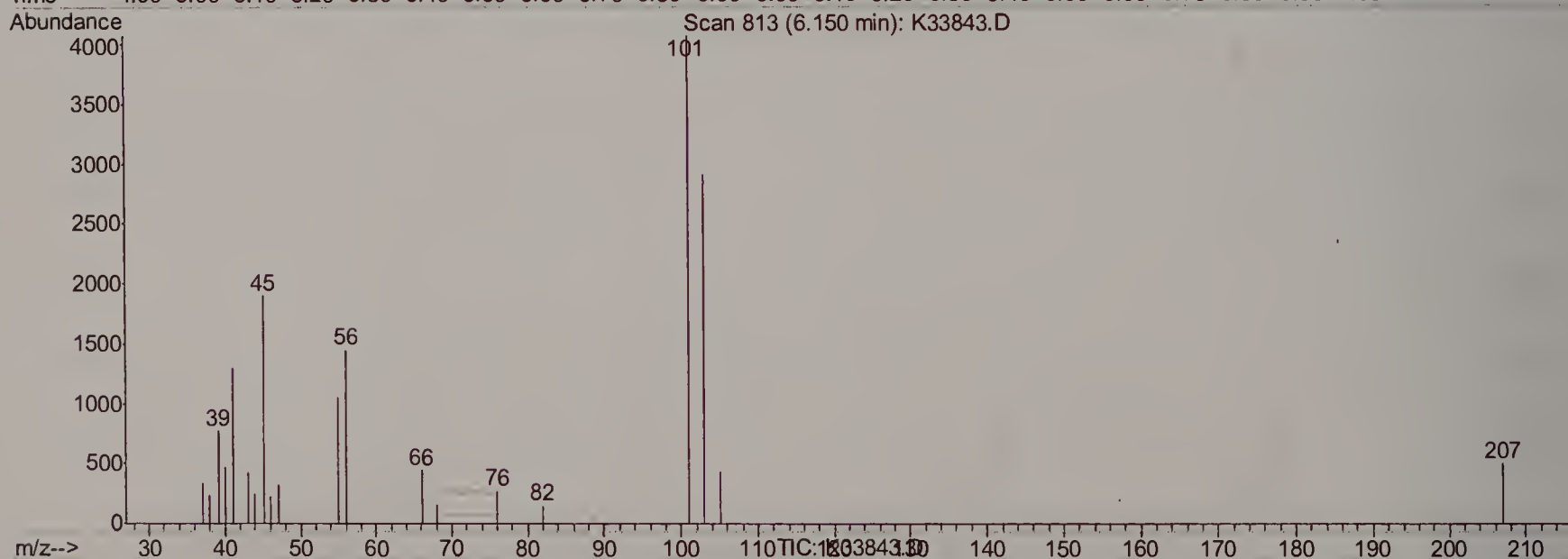
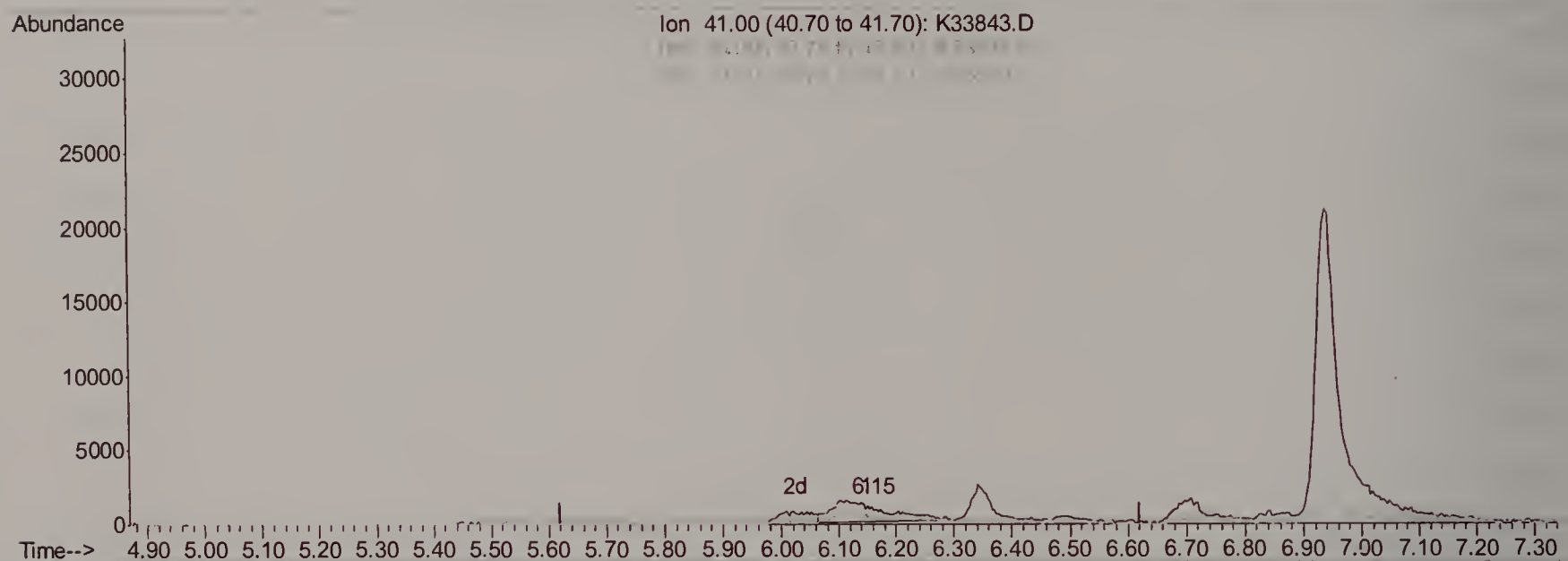
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33843.D
Acq On : 24 Apr 2009 1:30 pm
Sample : icl192-25
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:09 2009

Vial: 2
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K031109S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Wed Mar 11 13:07:51 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.15min 12.93ug/kg

response 10023

Ion	Exp%	Act%
41.00	100	100
40.00	47.10	50.70
39.00	57.90	55.09
0.00	0.00	0.00

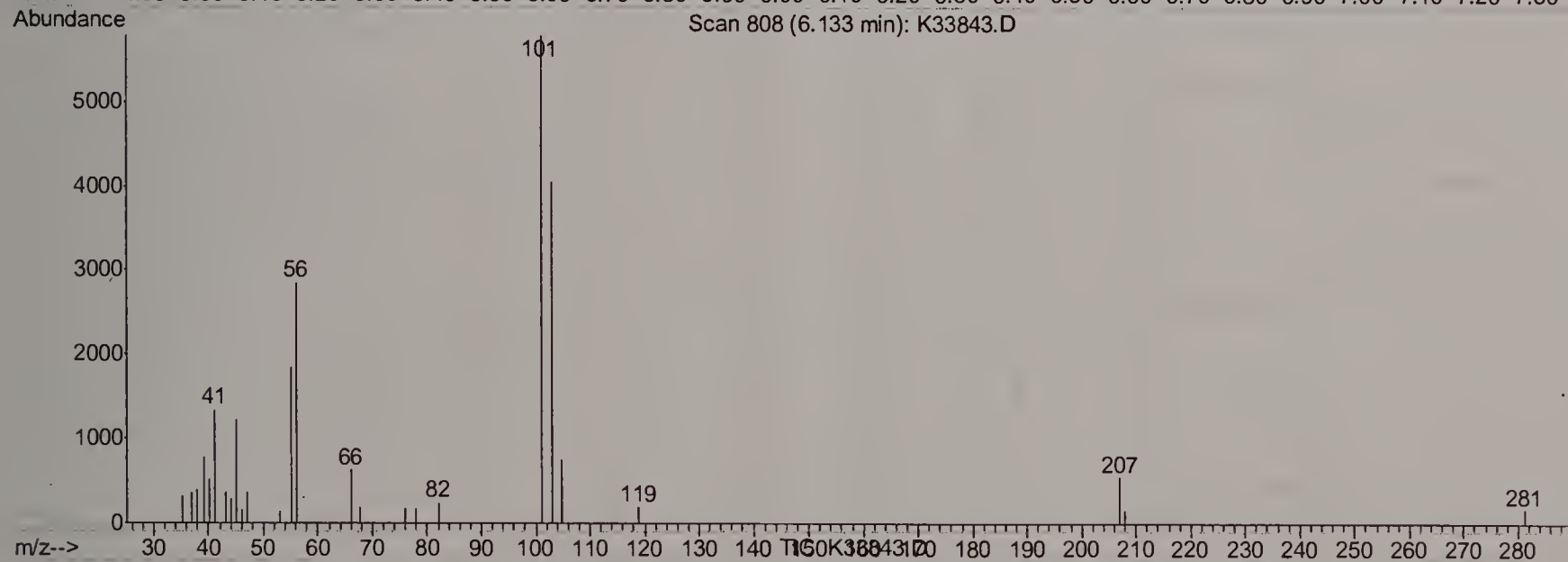
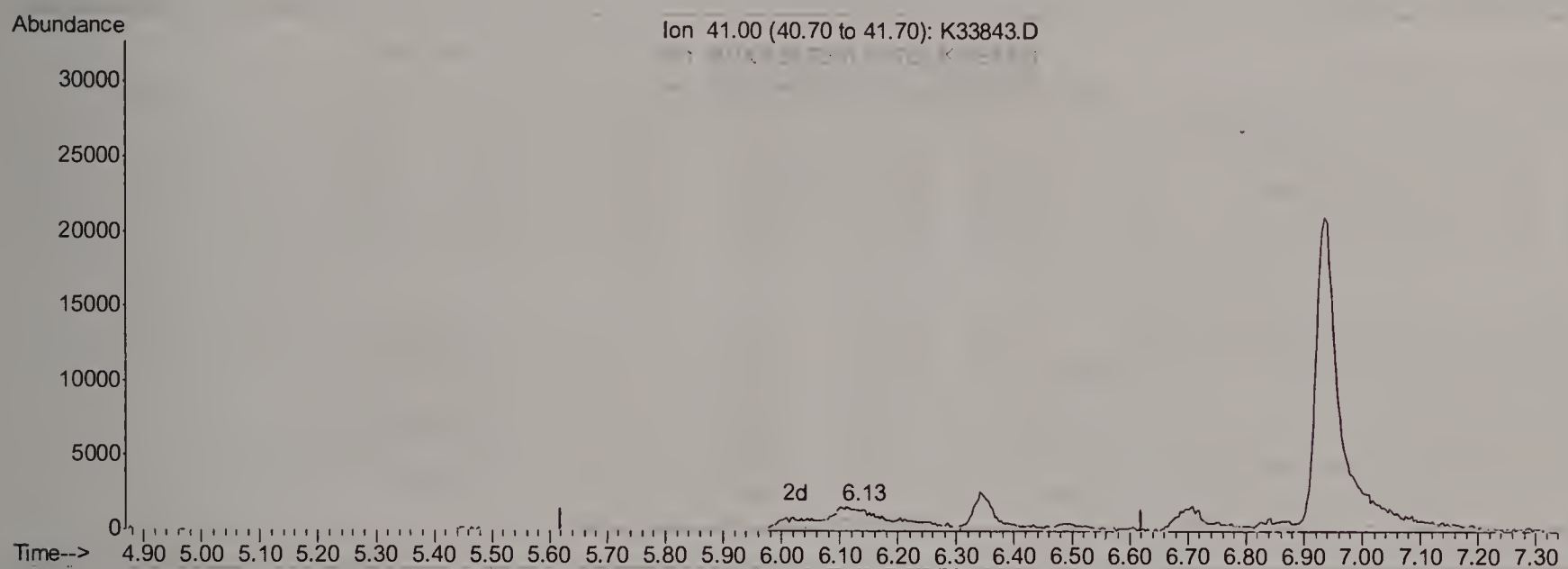
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33843.D
Acq On : 24 Apr 2009 1:30 pm
Sample : ic1192-25
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:09 2009

Vial: 2
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K031109S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Wed Mar 11 13:07:51 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 20.27ug/kg m

response 15708

Ion	Exp%	Act%
41.00	100	100
40.00	47.10	38.96
39.00	57.90	57.99
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33844.D
 Acq On : 24 Apr 2009 1:56 pm
 Sample : ic1192-5
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 24 15:12:13 2009

Vial: 3
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Fri Apr 24 15:10:53 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.67	65	55605m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	212224	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	286111	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	108386	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	129058	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	10549	4.88	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	9.76%#
62) toluene-d8 (s)	11.73	98	35588	4.93	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	9.86%#
84) bromofluorobenzene (s)	14.42	95	11592	5.02	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	10.04%#

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) tertiary butyl alcohol	6.73	59	7225	48.76	ug/kg	99
3) Ethanol	5.59	45	8586m	466.82	ug/kg	
5) dichlorodifluoromethane	4.33	85	6181m	4.59	ug/kg	
6) chloromethane	4.56	50	5550	5.67	ug/kg	83
7) vinyl chloride	4.81	62	3483m	4.54	ug/kg	
8) bromomethane	5.36	96	6022	5.66	ug/kg#	66
9) chloroethane	5.48	64	4389	4.30	ug/kg	80
10) ethyl ether	6.36	59	7677	4.62	ug/kg	98
11) acetonitrile	6.14	41	3218m	5.04	ug/kg	
12) trichlorofluoromethane	6.14	101	12898m	4.68	ug/kg	
13) freon-113	6.91	101	6427	4.33	ug/kg	88
14) acrolein	6.12	56	7256	23.33	ug/kg	100
15) 1,1-dichloroethene	6.73	96	8937	5.17	ug/kg	90
16) acetone	6.27	43	2518	4.74	ug/kg	89
17) Methyl Acetate	6.92	43	13524	5.28	ug/kg	98
18) methylene chloride	6.87	84	10342	5.14	ug/kg	84
19) methyl tert butyl ether	7.64	73	27458	4.93	ug/kg	97
20) acrylonitrile	6.78	53	17929	24.67	ug/kg	92
21) allyl chloride	6.96	41	13115	4.86	ug/kg	96
22) trans-1,2-dichloroethene	7.56	96	11631	5.07	ug/kg	83
23) iodomethane	6.79	142	16172	4.84	ug/kg	92
24) carbon disulfide	7.16	76	25506	4.80	ug/kg	94
25) propionitrile	7.88	54	378m	1.63	ug/kg	
26) vinyl acetate	7.93	43	15857	4.52	ug/kg	96
27) chloroprene	8.17	53	13502	4.56	ug/kg	92
28) di-isopropyl ether	8.21	45	31152	5.00	ug/kg	96
29) methacrylonitrile	8.34	41	5444	5.13	ug/kg	88
30) 2-butanone	8.24	72	1675m	5.54	ug/kg	
31) Hexane	8.19	41	12806	5.08	ug/kg#	79
32) 1,1-dichloroethane	7.80	63	17137	4.89	ug/kg	99
33) tert-butyl ethyl ether	8.60	59	29089	4.95	ug/kg	98
34) isobutyl alcohol	8.62	43	4677	26.94	ug/kg#	69
35) 2,2-dichloropropane	8.66	77	9644	4.81	ug/kg	92
36) cis-1,2-dichloroethene	8.37	96	12213	5.03	ug/kg	95
37) ethyl acetate	8.62	43	4677	6.06	ug/kg	57

(#) = qualifier out of range (m) = manual integration

K33844.D K042409S.M

Fri Apr 24 15:14:40 2009

MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33844.D
 Acq On : 24 Apr 2009 1:56 pm
 Sample : ic1192-5
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 24 15:12:13 2009

Vial: 3
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Fri Apr 24 15:10:53 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	6604	5.07	ug/kg	95
39) chloroform	8.58	83	18436	4.95	ug/kg	99
41) Tetrahydrofuran	8.91	42	2603	5.09	ug/kg	94
42) 1,1,1-trichloroethane	9.34	97	13623	4.79	ug/kg	77
43) n-Butyl Alcohol	9.34	TIC	36541	23.67	ug/L #	100
45) Cyclohexane	9.62	56	10552m	5.03	ug/kg	
46) carbon tetrachloride	9.70	117	12582	4.67	ug/kg	87
47) 1,1-dichloropropene	9.51	75	13041	4.93	ug/kg	96
48) benzene	9.73	78	41792	5.14	ug/kg	99
49) 1,2-dichloroethane	9.23	62	12417	5.07	ug/kg	94
50) tert-amyl methyl ether	9.85	73	25710	4.60	ug/kg	99
51) heptane	10.21	43	11402	5.10	ug/kg	93
52) 2-Nitropropane	10.33	TIC	136226	4.86	ug/L #	98
53) trichloroethene	10.35	95	11330	5.03	ug/kg	87
54) 1,2-dichloropropane	10.32	63	9822	5.03	ug/kg	97
55) dibromomethane	10.29	93	5854	4.84	ug/kg	98
56) bromodichloromethane	10.41	83	11821	4.66	ug/kg	96
57) Methylcyclohexane	10.87	83	11324	4.77	ug/kg	96
58) 2-chloroethyl vinyl ether	10.78	63	79m	1.44	ug/kg	
59) methyl methacrylate	10.50	69	5016	4.14	ug/kg	88
60) 1,4-dioxane	10.51	88	36m	2.62	ug/kg	
61) cis-1,3-dichloropropene	11.03	75	13860	4.70	ug/kg	92
63) 4-methyl-2-pentanone	11.12	43	6878	4.55	ug/kg	96
64) toluene	11.81	92	24300	4.91	ug/kg	92
65) trans-1,3-dichloropropene	11.45	75	10679	4.50	ug/kg	91
66) 1,1,2-trichloroethane	11.62	83	6888	4.75	ug/kg	90
67) ethyl methacrylate	11.82	69	8355	4.11	ug/kg	92
69) tetrachloroethene	12.55	166	11592	5.08	ug/kg	90
70) 1,3-dichloropropane	11.85	76	13726	5.10	ug/kg	97
71) dibromochloromethane	12.15	129	8741	4.52	ug/kg	96
72) 1,2-dibromoethane	12.40	107	8757	4.98	ug/kg	97
73) 2-hexanone	11.99	43	4917	4.44	ug/kg#	59
74) chlorobenzene	13.23	112	27652	5.24	ug/kg	97
75) 1,1,1,2-tetrachloroethane	13.14	131	9785	5.05	ug/kg	93
76) ethylbenzene	13.40	91	40194	4.97	ug/kg	99
77) m,p-xylene	13.59	106	33146	9.76	ug/kg	95
78) o-xylene	14.00	106	16481	5.00	ug/kg	94
79) styrene	13.93	104	20957	4.31	ug/kg	92
80) bromoform	13.75	173	5191	4.45	ug/kg	88
81) trans-1,4-dichloro-2-buten	14.15	53	1882	4.12	ug/kg#	58
83) isopropylbenzene	14.36	105	32134	4.74	ug/kg	97
85) bromobenzene	14.65	156	11878	5.01	ug/kg	94
86) 1,1,2,2-tetrachloroethane	14.00	83	10150	5.17	ug/kg	96
87) 1,2,3-trichloropropane	14.15	75	10118	4.85	ug/kg	94
88) n-propylbenzene	14.81	91	40130	4.82	ug/kg	98
89) 2-chlorotoluene	14.93	91	27160	5.03	ug/kg	99
90) 4-chlorotoluene	15.00	91	26302	4.80	ug/kg	96
91) 1,3,5-trimethylbenzene	15.08	105	30989	4.82	ug/kg	100
92) tert-butylbenzene	15.39	91	16606	5.05	ug/kg	95

(#) = qualifier out of range (m) = manual integration

K33844.D K042409S.M

Fri Apr 24 15:14:40 2009

MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33844.D
Acq On : 24 Apr 2009 1:56 pm
Sample : ic1192-5
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:12:13 2009

Vial: 3
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:10:53 2009
Response via : Initial Calibration
DataAcq Meth : K8260

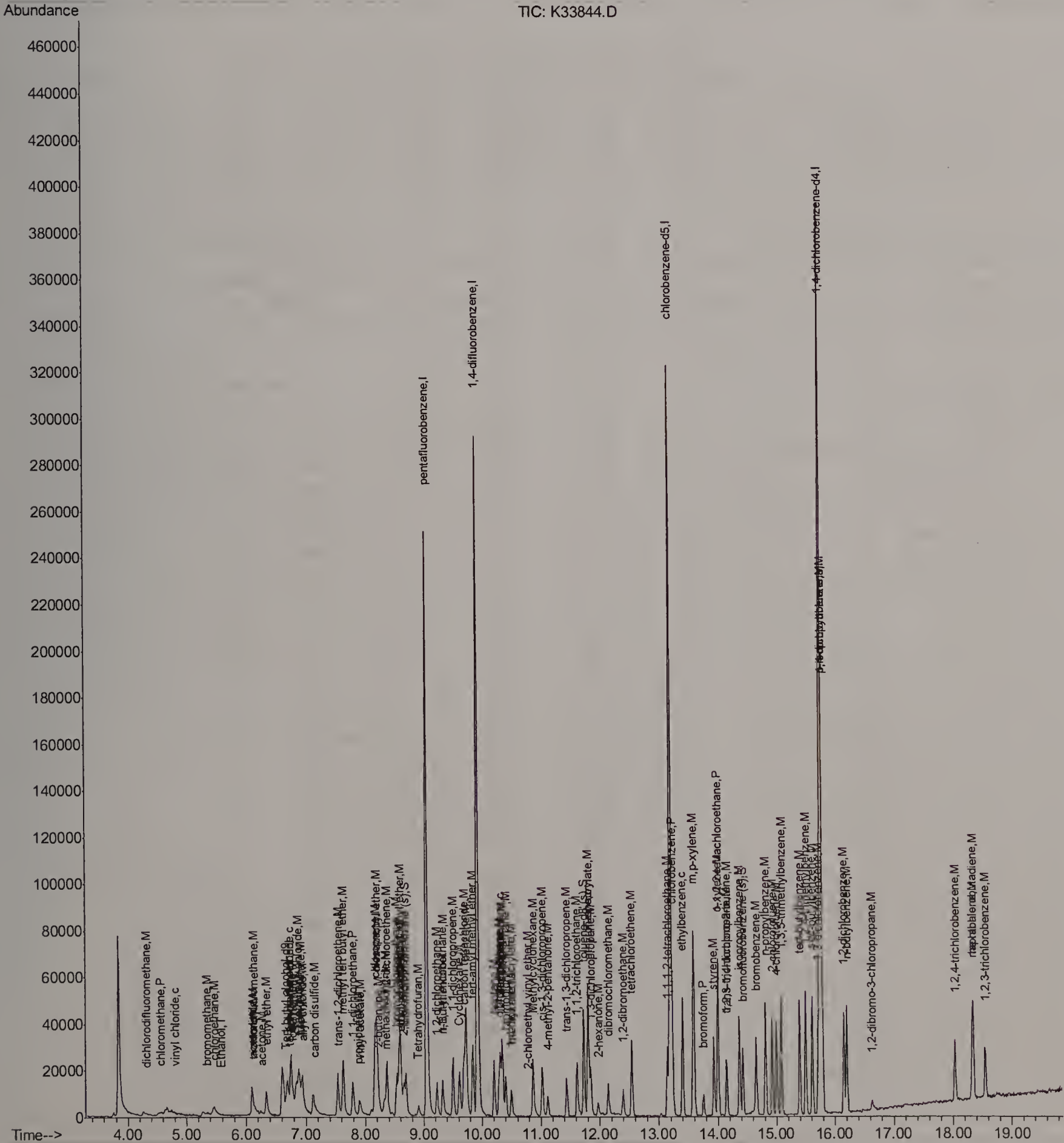
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	31464	4.77	ug/kg	94
94) sec-butylbenzene	15.61	105	39293	4.96	ug/kg	100
95) 1,3-dichlorobenzene	15.72	146	22013	5.05	ug/kg	99
96) p-isopropyltoluene	15.78	119	35509	5.05	ug/kg	97
97) 1,4-dichlorobenzene	15.78	146	23849	5.24	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	22287	5.11	ug/kg	93
99) n-butylbenzene	16.20	91	28552	4.90	ug/kg	96
100) 1,2-dibromo-3-chloropropan	16.63	75	1429	5.70	ug/kg#	63
101) 1,2,4-trichlorobenzene	18.03	180	10637	5.35	ug/kg	100
102) hexachlorobutadiene	18.34	225	7926	6.03	ug/kg	98
103) naphthalene	18.33	128	24539	6.18	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	9439	6.69	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33844.D K042409S.M Fri Apr 24 15:14:40 2009 MSK

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33844.D Vial: 3
Acq On : 24 Apr 2009 1:56 pm Operator: RobertT
Sample : ic1192-5 Inst : gcms k
Misc : ms18077,msk1192,10,,100,10,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:13 2009 Quant Results File: K042409S.RES

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:14:15 2009
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33845.D
 Acq On : 24 Apr 2009 2:22 pm
 Sample : ic1192-2
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 24 15:15:04 2009

Vial: 4
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Fri Apr 24 15:14:15 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.67	65	59509	500.00	ug/kg	0.01
4) pentafluorobenzene	9.06	168	209878	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	284016	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	105929	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	126200	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	4444	2.10	ug/kg	0.00
Spiked Amount 50.000	Range 85 - 129		Recovery =	4.20%#		
62) toluene-d8 (s)	11.73	98	15065	2.12	ug/kg	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery =	4.24%#		
84) bromofluorobenzene (s)	14.42	95	4748	2.10	ug/kg	0.00
Spiked Amount 50.000	Range 80 - 119		Recovery =	4.20%#		

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) tertiary butyl alcohol	6.71	59	2869	18.32	ug/kg#	55
3) Ethanol	5.52	45	3285m	172.62	ug/kg	
5) dichlorodifluoromethane	4.30	85	2149m	1.68	ug/kg	
6) chloromethane	4.56	50	2284	2.21	ug/kg	90
7) vinyl chloride	4.78	62	781m	1.08	ug/kg	
8) bromomethane	5.36	96	3173m	2.83	ug/kg	
9) chloroethane	5.47	64	1585	1.69	ug/kg#	43
10) ethyl ether	6.36	59	3132	1.98	ug/kg	89
11) acetonitrile	6.15	41	190m	0.30	ug/kg	
12) trichlorofluoromethane	6.13	101	4993	1.89	ug/kg#	66
13) freon-113	6.90	101	2352	1.72	ug/kg	80
14) acrolein	6.13	56	2769	9.31	ug/kg	100
15) 1,1-dichloroethene	6.72	96	3627	2.09	ug/kg	85
16) acetone	6.27	43	1043	2.04	ug/kg#	41
17) Methyl Acetate	6.93	43	5506	2.11	ug/kg#	85
18) methylene chloride	6.86	84	4202	2.08	ug/kg	85
19) methyl tert butyl ether	7.64	73	11799	2.16	ug/kg	92
20) acrylonitrile	6.79	53	7478	10.47	ug/kg	90
21) allyl chloride	6.96	41	5210	1.98	ug/kg	91
22) trans-1,2-dichloroethene	7.55	96	4431	1.94	ug/kg	80
23) iodomethane	6.78	142	6636	2.04	ug/kg	93
24) carbon disulfide	7.15	76	11008	2.14	ug/kg	74
26) vinyl acetate	7.93	43	5774	1.75	ug/kg	72
27) chloroprene	8.17	53	5662	2.02	ug/kg	98
28) di-isopropyl ether	8.21	45	13266	2.15	ug/kg	92
29) methacrylonitrile	8.33	41	1937	1.82	ug/kg	96
30) 2-butanone	8.24	72	983m	3.12	ug/kg	
31) Hexane	8.19	41	5749	2.29	ug/kg	96
32) 1,1-dichloroethane	7.80	63	7406	2.16	ug/kg	93
33) tert-butyl ethyl ether	8.60	59	11969	2.07	ug/kg	94
34) isobutyl alcohol	8.62	43	1968	11.04	ug/kg#	64
35) 2,2-dichloropropane	8.66	77	4131	2.12	ug/kg	88
36) cis-1,2-dichloroethene	8.37	96	5276	2.19	ug/kg	97
37) ethyl acetate	8.62	43	1968	2.33	ug/kg	57
38) bromochloromethane	8.54	128	2848	2.19	ug/kg	93

(#) = qualifier out of range (m) = manual integration

K33845.D K042409S.M

Fri Apr 24 15:16:48 2009

MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33845.D
 Acq On : 24 Apr 2009 2:22 pm
 Sample : ic1192-2
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 24 15:15:04 2009

Vial: 4
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Fri Apr 24 15:14:15 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
39) chloroform	8.58	83	7687	2.10	ug/kg	92
41) Tetrahydrofuran	8.92	42	1204	2.36	ug/kg	92
42) 1,1,1-trichloroethane	9.34	97	5720	2.08	ug/kg	90
43) n-Butyl Alcohol	9.35	TIC	17349	11.68	ug/L #	100
45) Cyclohexane	9.62	56	4674m	2.24	ug/kg	
46) carbon tetrachloride	9.70	117	5087	1.97	ug/kg	98
47) 1,1-dichloropropene	9.51	75	5420	2.08	ug/kg	97
48) benzene	9.73	78	18279	2.23	ug/kg	97
49) 1,2-dichloroethane	9.23	62	5377	2.20	ug/kg	90
50) tert-amyl methyl ether	9.85	73	11091	2.08	ug/kg	96
51) heptane	10.21	43	4964	2.22	ug/kg	96
52) 2-Nitropropane	10.31	TIC	32271	1.18	ug/L #	84
53) trichloroethene	10.35	95	4653	2.07	ug/kg	90
54) 1,2-dichloropropane	10.32	63	4068	2.09	ug/kg	84
55) dibromomethane	10.29	93	2522	2.13	ug/kg	98
56) bromodichloromethane	10.41	83	5170	2.13	ug/kg	94
57) Methylcyclohexane	10.87	83	4628	2.01	ug/kg	98
59) methyl methacrylate	10.51	69	1978	1.80	ug/kg	94
61) cis-1,3-dichloropropene	11.03	75	5733	2.02	ug/kg	89
63) 4-methyl-2-pentanone	11.12	43	2887	2.01	ug/kg#	84
64) toluene	11.81	92	10038	2.06	ug/kg	100
65) trans-1,3-dichloropropene	11.45	75	4476	2.00	ug/kg	96
66) 1,1,2-trichloroethane	11.62	83	2887	2.06	ug/kg	92
67) ethyl methacrylate	11.82	69	3051	1.66	ug/kg	91
69) tetrachloroethene	12.55	166	5126	2.28	ug/kg	95
70) 1,3-dichloropropane	11.85	76	5954	2.24	ug/kg	96
71) dibromochloromethane	12.15	129	3623	2.01	ug/kg	90
72) 1,2-dibromoethane	12.40	107	3699	2.16	ug/kg	92
73) 2-hexanone	11.98	43	1582	1.55	ug/kg#	59
74) chlorobenzene	13.23	112	11852	2.24	ug/kg	97
75) 1,1,1,2-tetrachloroethane	13.14	131	4241	2.23	ug/kg	92
76) ethylbenzene	13.40	91	16889	2.14	ug/kg	98
77) m,p-xylene	13.59	106	13534	4.13	ug/kg	89
78) o-xylene	14.00	106	6628	2.06	ug/kg	80
79) styrene	13.93	104	7932	1.79	ug/kg	95
80) bromoform	13.75	173	2105	1.95	ug/kg	89
83) isopropylbenzene	14.36	105	12927	2.00	ug/kg	94
85) bromobenzene	14.65	156	5009	2.16	ug/kg	96
86) 1,1,2,2-tetrachloroethane	14.00	83	4214	2.16	ug/kg	89
87) 1,2,3-trichloropropane	14.15	75	4256	2.12	ug/kg	99
88) n-propylbenzene	14.81	91	16556	2.07	ug/kg	95
89) 2-chlorotoluene	14.93	91	11262	2.13	ug/kg	99
90) 4-chlorotoluene	15.01	91	10789	2.06	ug/kg	97
91) 1,3,5-trimethylbenzene	15.08	105	12349	2.00	ug/kg	96
92) tert-butylbenzene	15.39	91	6774	2.10	ug/kg	97
93) 1,2,4-trimethylbenzene	15.49	105	12445	1.98	ug/kg	99
94) sec-butylbenzene	15.61	105	16224	2.10	ug/kg	94
95) 1,3-dichlorobenzene	15.72	146	9624	2.25	ug/kg	98
96) p-isopropyltoluene	15.78	119	14621	2.12	ug/kg	98

(#) = qualifier out of range (m) = manual integration

K33845.D K042409S.M

Fri Apr 24 15:16:48 2009

MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33845.D
Acq On : 24 Apr 2009 2:22 pm
Sample : ic1192-2
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:15:04 2009

Vial: 4
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:14:15 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
97) 1,4-dichlorobenzene	15.78	146	10600	2.33	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	9465	2.19	ug/kg	97
99) n-butylbenzene	16.20	91	11474	2.03	ug/kg	93
100) 1,2-dibromo-3-chloropropan	16.63	75	529m	2.02	ug/kg	
101) 1,2,4-trichlorobenzene	18.04	180	4217	2.10	ug/kg	92
102) hexachlorobutadiene	18.34	225	3630	2.56	ug/kg	82
103) naphthalene	18.33	128	9288	2.14	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	3338	2.07	ug/kg	82

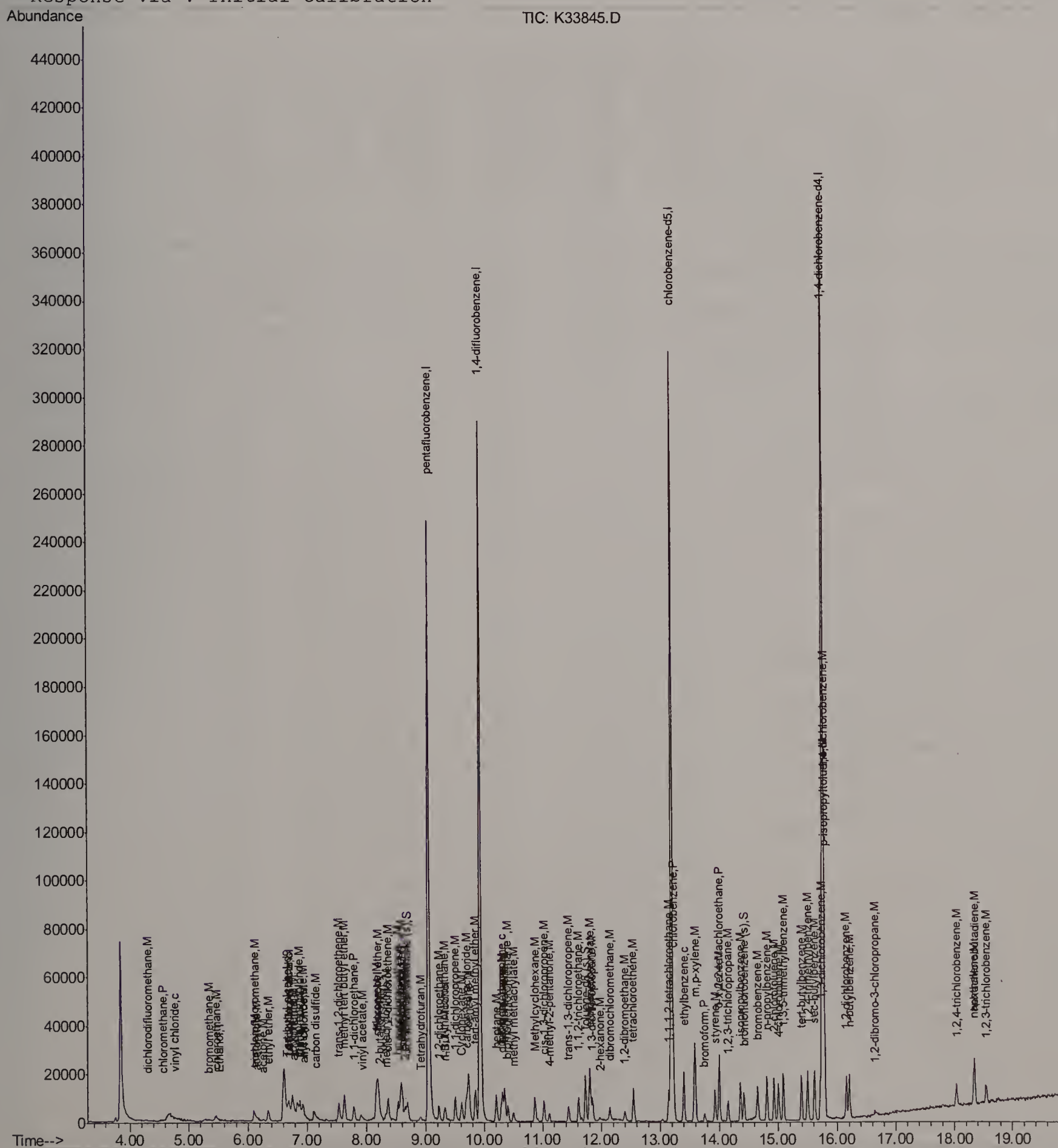
(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33845.D K042409S.M Fri Apr 24 15:16:48 2009 MSK

(OT Reviewed)

Vial: 4
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

```
Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Fri Apr 24 15:14:15 2009
Response via  : Initial Calibration
```



6.6.3

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33846.D
Acq On : 24 Apr 2009 2:49 pm
Sample : ic1192-0.5
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:19:43 2009

Vial: 5
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:17:10 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.68	65	58348	500.00	ug/kg	0.02
4) pentafluorobenzene	9.06	168	208451	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	284339	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	103861	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	120475	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	0.00	113	0	0.00	ug/kg	
Spiked Amount	50.000	Range	85 - 129	Recovery	=	0.00%#
62) toluene-d8 (s)	11.73	98	2792	0.38	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	0.76%#
84) bromofluorobenzene (s)	0.00	95	0	0.00	ug/kg	
Spiked Amount	50.000	Range	80 - 119	Recovery	=	0.00%#

Target Compounds

						Qvalue
18) methylene chloride	6.86	84	1038	0.51	ug/kg#	33
19) methyl tert butyl ether	7.64	73	2831	0.51	ug/kg	89
20) acrylonitrile	6.81	53	1139	1.58	ug/kg	70
22) trans-1,2-dichloroethene	7.54	96	1163	0.52	ug/kg	84
23) iodomethane	6.77	142	1021	0.31	ug/kg#	36
24) carbon disulfide	7.14	76	2259	0.43	ug/kg	74
27) chloroprene	8.16	53	1104	0.40	ug/kg	94
28) di-isopropyl ether	8.20	45	2855	0.45	ug/kg	82
29) methacrylonitrile	8.19	41	1142	1.11	ug/kg#	21
31) Hexane	8.19	41	1142	0.44	ug/kg#	60
32) 1,1-dichloroethane	7.80	63	1555	0.44	ug/kg	88
33) tert-butyl ethyl ether	8.60	59	2448	0.42	ug/kg	97
36) cis-1,2-dichloroethene	8.37	96	1404	0.57	ug/kg	82
39) chloroform	8.58	83	1887	0.51	ug/kg	85
42) 1,1,1-trichloroethane	9.33	97	1065	0.38	ug/kg#	72
43) n-Butyl Alcohol	9.33	TIC	3287	2.11	ug/L #	100
46) carbon tetrachloride	9.70	117	1026	0.40	ug/kg	88
47) 1,1-dichloropropene	9.51	75	1136	0.43	ug/kg	87
48) benzene	9.73	78	4119	0.48	ug/kg	98
49) 1,2-dichloroethane	9.23	62	1115	0.44	ug/kg	68
50) tert-amyl methyl ether	9.85	73	2328	0.43	ug/kg	96
51) heptane	10.21	43	1014	0.44	ug/kg	96
52) 2-Nitropropane	10.30	TIC	7952	0.34	ug/L #	89
53) trichloroethene	10.35	95	1042	0.46	ug/kg#	75
61) cis-1,3-dichloropropene	11.03	75	1264	0.44	ug/kg	98
64) toluene	11.81	92	2238	0.45	ug/kg	96
69) tetrachloroethene	12.55	166	1051	0.46	ug/kg	93
70) 1,3-dichloropropene	11.85	76	1291	0.48	ug/kg	97
74) chlorobenzene	13.23	112	2525	0.47	ug/kg	96
76) ethylbenzene	13.40	91	3709	0.47	ug/kg	99
77) m,p-xylene	13.59	106	2956	0.91	ug/kg	88
78) o-xylene	14.00	106	1426	0.45	ug/kg	91
79) styrene	13.93	104	1557	0.37	ug/kg	95
83) isopropylbenzene	14.36	105	2770	0.45	ug/kg	97
85) bromobenzene	14.65	156	1033	0.45	ug/kg	73

(#)=qualifier out of range (m)=manual integration

K33846.D K042409S.M

Fri Apr 24 15:20:36 2009

MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33846.D
Acq On : 24 Apr 2009 2:49 pm
Sample : ic1192-0.5
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:19:43 2009

Vial: 5
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:17:10 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
88) n-propylbenzene	14.81	91	3513	0.45	ug/kg	94
89) 2-chlorotoluene	14.93	91	2424	0.47	ug/kg	88
90) 4-chlorotoluene	15.01	91	2180	0.43	ug/kg	77
91) 1,3,5-trimethylbenzene	15.09	105	2502	0.42	ug/kg	94
92) tert-butylbenzene	15.39	91	1419	0.45	ug/kg	81
93) 1,2,4-trimethylbenzene	15.49	105	2534	0.42	ug/kg	96
94) sec-butylbenzene	15.61	105	3474	0.46	ug/kg	96
95) 1,3-dichlorobenzene	15.72	146	2097	0.49	ug/kg	89
96) p-isopropyltoluene	15.78	119	3363	0.50	ug/kg	94
97) 1,4-dichlorobenzene	15.78	146	2378	0.52	ug/kg	92
98) 1,2-dichlorobenzene	16.15	146	2078	0.49	ug/kg	76
99) n-butylbenzene	16.20	91	2630	0.49	ug/kg	92
101) 1,2,4-trichlorobenzene	18.04	180	1005	0.51	ug/kg	91
103) naphthalene	18.33	128	2669	0.63	ug/kg	100

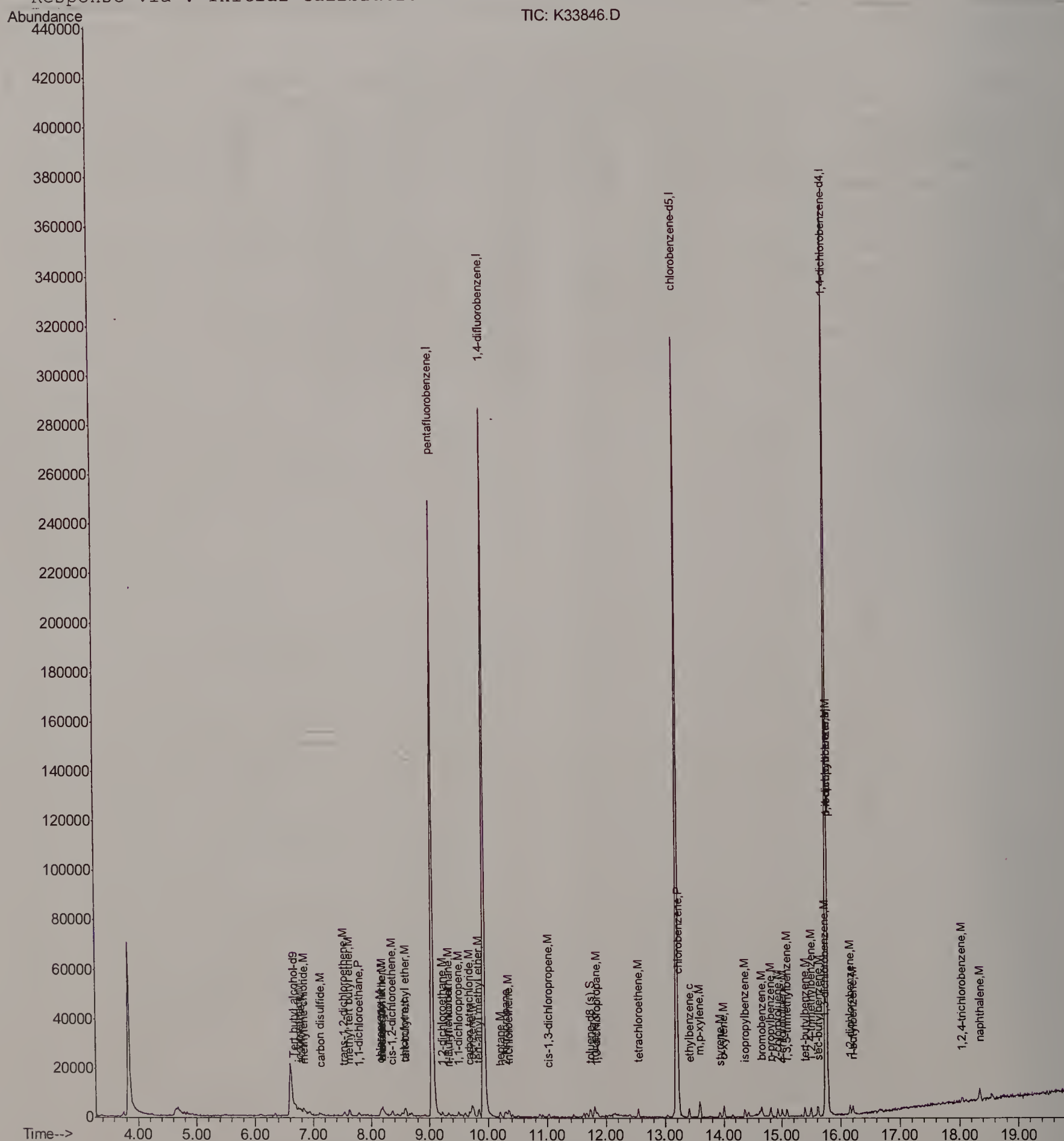
(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33846.D K042409S.M Fri Apr 24 15:20:37 2009 MSK

(QT Reviewed)

Vial: 5
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

```
Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Fri Apr 24 15:20:04 2009
Response via  : Initial Calibration
```



6.6.4

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33847.D
Acq On : 24 Apr 2009 3:15 pm
Sample : ic1192-400
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:41:05 2009

Vial: 6
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:20:04 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.67	65	52172m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	203375	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	269287	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	108375m	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	130882	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	748788	359.67	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	719.34%#
62) toluene-d8 (s)	11.73	98	2296181	354.21	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	708.42%#
84) bromofluorobenzene (s)	14.42	95	865074	362.65	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	725.30%#

Target Compounds

						Qvalue
2) tertiary butyl alcohol	6.73	59	500595	3751.07	ug/kg	89
3) Ethanol	5.65	45	641151	40265.95	ug/kg#	100
5) dichlorodifluoromethane	4.35	85	474067	404.32	ug/kg	97
6) chloromethane	4.57	50	328348	316.90	ug/kg	93
7) vinyl chloride	4.85	62	239705m	403.78	ug/kg	
8) bromomethane	5.39	96	360945	291.81	ug/kg	93
9) chloroethane	5.53	64	350624m	406.60	ug/kg	
10) ethyl ether	6.35	59	559050	366.20	ug/kg	100
11) acetonitrile	6.12	41	224591m	510.28	ug/kg	
12) trichlorofluoromethane	6.19	101	964809m	384.40	ug/kg	
13) freon-113	6.98	101	496108m	392.30	ug/kg	
14) acrolein	6.11	56	531132	1886.65	ug/kg	100
15) 1,1-dichloroethene	6.74	96	554573m	324.59	ug/kg	
16) acetone	6.24	43	198158	397.19	ug/kg	99
17) Methyl Acetate	6.88	43	931198	362.13	ug/kg	99
18) methylene chloride	6.89	84	660007	331.14	ug/kg	94
19) methyl tert butyl ether	7.64	73	2001995	366.74	ug/kg	99
20) acrylonitrile	6.76	53	1219911	1911.48	ug/kg	98
21) allyl chloride	6.98	41	898371	353.43	ug/kg	97
22) trans-1,2-dichloroethene	7.57	96	772978	349.58	ug/kg	92
23) iodomethane	6.81	142	1126117m	391.45	ug/kg	
24) carbon disulfide	7.16	76	1891416m	383.59	ug/kg	
25) propionitrile	7.84	54	97640	662.15	ug/kg	100
26) vinyl acetate	7.90	43	1354672	441.88	ug/kg	100
27) chloroprene	8.17	53	1018042	394.43	ug/kg	97
28) di-isopropyl ether	8.21	45	1823584	304.64	ug/kg	94
29) methacrylonitrile	8.32	41	409268	313.14	ug/kg	92
30) 2-butanone	8.22	72	88334	243.83	ug/kg#	7
31) Hexane	8.19	41	714130	289.00	ug/kg	87
32) 1,1-dichloroethane	7.81	63	1157264	348.88	ug/kg	97
33) tert-butyl ethyl ether	8.60	59	1900769	349.05	ug/kg	97
34) isobutyl alcohol	8.63	43	289764	1620.83	ug/kg	99
35) 2,2-dichloropropane	8.68	77	681615	354.33	ug/kg	97
36) cis-1,2-dichloroethene	8.37	96	784208	314.83	ug/kg	99
37) ethyl acetate	8.63	43	293337	339.91	ug/kg	76

(#)=qualifier out of range (m)=manual integration

K33847.D K042409S.M Fri Apr 24 15:43:32 2009 MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33847.D
 Acq On : 24 Apr 2009 3:15 pm
 Sample : ic1192-400
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 24 15:41:05 2009

Vial: 6
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Fri Apr 24 15:20:04 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	450587	347.08	ug/kg	99
39) chloroform	8.58	83	1221252	336.62	ug/kg	91
41) Tetrahydrofuran	8.92	42	198594	378.94	ug/kg	95
42) 1,1,1-trichloroethane	9.35	97	1029499	404.18	ug/kg	97
43) n-Butyl Alcohol	9.34	TIC	2596753	1777.45	ug/L #	100
45) Cyclohexane	9.62	56	676739m	328.70	ug/kg	
46) carbon tetrachloride	9.71	117	931060	402.23	ug/kg	97
47) 1,1-dichloropropene	9.51	75	928192	384.15	ug/kg	99
48) benzene	9.73	78	2474680	309.42	ug/kg	99
49) 1,2-dichloroethane	9.23	62	895672	385.07	ug/kg	93
50) tert-amyl methyl ether	9.85	73	1862911	377.01	ug/kg	99
51) heptane	10.21	43	692355	324.95	ug/kg	97
52) 2-Nitropropane	10.33	TIC	9306512	451.90	ug/L #	99
53) trichloroethene	10.35	95	744465	353.17	ug/kg	98
54) 1,2-dichloropropane	10.32	63	606117	323.87	ug/kg	100
55) dibromomethane	10.29	93	425676	371.62	ug/kg	98
56) bromodichloromethane	10.41	83	938597	398.59	ug/kg	96
57) Methylcyclohexane	10.89	83	751593	343.70	ug/kg	98
58) 2-chloroethyl vinyl ether	10.78	63	27758	834.13	ug/kg#	100
59) methyl methacrylate	10.50	69	487216	483.68	ug/kg	98
60) 1,4-dioxane	10.54	88	35376m	4946.62	ug/kg	
61) cis-1,3-dichloropropene	11.02	75	1048669	399.59	ug/kg	97
63) 4-methyl-2-pentanone	11.12	43	603290	442.98	ug/kg	99
64) toluene	11.80	92	1461003	320.53	ug/kg	99
65) trans-1,3-dichloropropene	11.44	75	914015	430.86	ug/kg	96
66) 1,1,2-trichloroethane	11.62	83	505724	376.52	ug/kg	96
67) ethyl methacrylate	11.82	69	712060	433.27	ug/kg	91
69) tetrachloroethene	12.55	166	775694	329.62	ug/kg	98
70) 1,3-dichloropropane	11.85	76	917484	328.34	ug/kg	97
71) dibromochloromethane	12.15	129	807335	437.49	ug/kg	98
72) 1,2-dibromoethane	12.40	107	696890	387.14	ug/kg	99
73) 2-hexanone	11.97	43	450428	465.88	ug/kg	97
74) chlorobenzene	13.23	112	1826910	330.08	ug/kg	99
75) 1,1,1,2-tetrachloroethane	13.15	131	757873	374.97	ug/kg	97
76) ethylbenzene	13.40	91	2775364	341.52	ug/kg	99
77) m,p-xylene	13.59	106	2121682	640.20	ug/kg	95
78) o-xylene	14.00	106	1071543	330.73	ug/kg	95
79) styrene	13.93	104	1908998	466.72	ug/kg	94
80) bromoform	13.75	173	593215	542.54	ug/kg	98
81) trans-1,4-dichloro-2-buten	14.15	53	217499	522.32	ug/kg#	81
83) isopropylbenzene	14.36	105	2373582	363.65	ug/kg	99
85) bromobenzene	14.65	156	899319	372.56	ug/kg	98
86) 1,1,2,2-tetrachloroethane	14.00	83	680995	327.60	ug/kg	96
87) 1,2,3-trichloropropane	14.15	75	869402	409.15	ug/kg	98
88) n-propylbenzene	14.81	91	2982293	363.68	ug/kg	99
89) 2-chlorotoluene	14.93	91	1952230	353.54	ug/kg	100
90) 4-chlorotoluene	15.00	91	1994331	375.93	ug/kg	99
91) 1,3,5-trimethylbenzene	15.08	105	2264044	367.40	ug/kg	98
92) tert-butylbenzene	15.39	91	1198439	360.44	ug/kg	97

(#) = qualifier out of range (m) = manual integration

K33847.D K042409S.M

Fri Apr 24 15:43:33 2009

MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33847.D
Acq On : 24 Apr 2009 3:15 pm
Sample : ic1192-400
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 24 15:41:05 2009

Vial: 6
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:20:04 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.50	105	2335277	373.28	ug/kg	97
94) sec-butylbenzene	15.61	105	2664660	333.38	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	1613331	350.11	ug/kg	99
96) p-isopropyltoluene	15.78	119	2248554	307.76	ug/kg	98
97) 1,4-dichlorobenzene	15.78	146	1516728	301.64	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	1606623	349.85	ug/kg	98
99) n-butylbenzene	16.20	91	1995363	341.67	ug/kg	99
100) 1,2-dibromo-3-chloropropan	16.63	75	122042	447.30	ug/kg	89
101) 1,2,4-trichlorobenzene	18.03	180	836863	391.76	ug/kg	99
102) hexachlorobutadiene	18.34	225	377205	234.65	ug/kg	96
103) naphthalene	18.32	128	1870146	381.33	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	585682	346.19	ug/kg	98

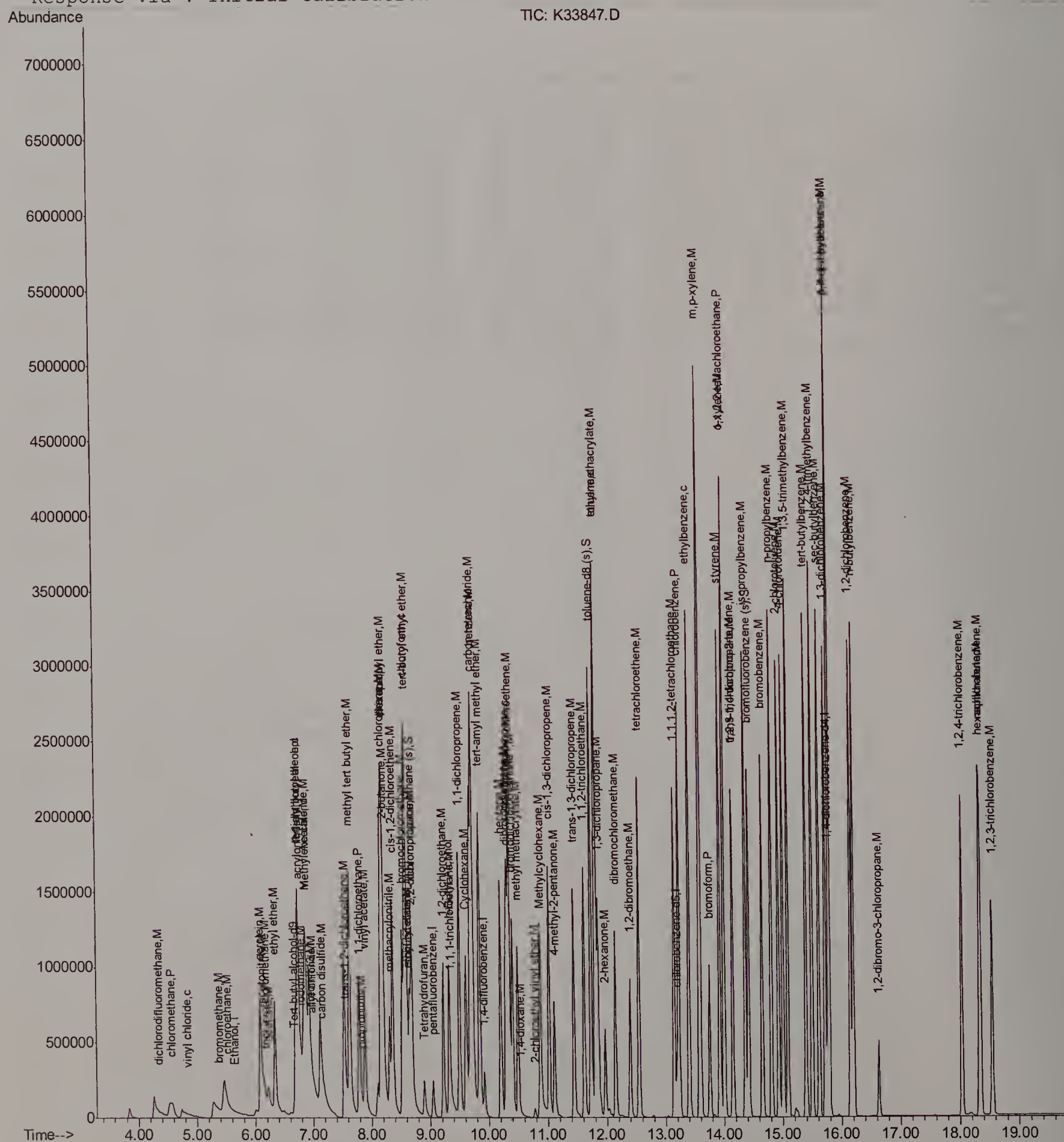
(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33847.D K042409S.M Fri Apr 24 15:43:33 2009 MSK

(QT Reviewed)

Vial: 6
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

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Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Fri Apr 24 15:43:07 2009
Response via  : Initial Calibration
```



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33848.D
 Acq On : 24 Apr 2009 3:41 pm
 Sample : ic1192-200
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 08:58:56 2009

Vial: 7
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Fri Apr 24 15:43:07 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.67	65	54272m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	209026	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	275570	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	109055m	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	136408	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	394068	188.93	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	377.86%#
62) toluene-d8 (s)	11.73	98	1264392	195.06	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	390.12%#
84) bromofluorobenzene (s)	14.42	95	456363	187.95	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	375.90%#

Target Compounds

						Qvalue
2) tertiary butyl alcohol	6.73	59	268313	1963.28	ug/kg	89
3) Ethanol	5.65	45	339994	20492.23	ug/kg#	100
5) dichlorodifluoromethane	4.35	85	243405	201.44	ug/kg	95
6) chloromethane	4.57	50	179783	178.07	ug/kg	93
7) vinyl chloride	4.84	62	123990	202.73	ug/kg	96
8) bromomethane	5.37	96	182117	153.64	ug/kg	98
9) chloroethane	5.53	64	181628m	204.09	ug/kg	
10) ethyl ether	6.35	59	292943	190.73	ug/kg	95
11) acetonitrile	6.12	41	123193m	254.77	ug/kg	
12) trichlorofluoromethane	6.18	101	493609m	193.23	ug/kg	
13) freon-113	6.97	101	266030m	205.67	ug/kg	
14) acrolein	6.11	56	293811	1030.03	ug/kg	100
15) 1,1-dichloroethene	6.74	96	294085m	175.76	ug/kg	
16) acetone	6.24	43	108754	212.47	ug/kg	98
17) Methyl Acetate	6.89	43	499764	193.68	ug/kg	97
18) methylene chloride	6.88	84	352125	178.02	ug/kg	92
19) methyl tert butyl ether	7.64	73	1058414	191.84	ug/kg	99
20) acrylonitrile	6.75	53	650886m	1001.16	ug/kg	
21) allyl chloride	6.97	41	457089	180.21	ug/kg	100
22) trans-1,2-dichloroethene	7.57	96	407161	183.79	ug/kg	94
23) iodomethane	6.80	142	598682m	203.35	ug/kg	
24) carbon disulfide	7.16	76	979569m	194.89	ug/kg	
25) propionitrile	7.85	54	51830	280.67	ug/kg	100
26) vinyl acetate	7.90	43	707622	218.85	ug/kg	98
27) chloroprene	8.17	53	542366	205.02	ug/kg	99
28) di-isopropyl ether	8.21	45	1044092	178.20	ug/kg	95
29) methacrylonitrile	8.33	41	214134	166.65	ug/kg	95
30) 2-butanone	8.22	72	50338	149.82	ug/kg#	32
31) Hexane	8.19	41	407358	169.82	ug/kg	94
32) 1,1-dichloroethane	7.81	63	625201	188.20	ug/kg	97
33) tert-butyl ethyl ether	8.60	59	1057776	193.94	ug/kg	97
34) isobutyl alcohol	8.63	43	154314	881.62	ug/kg	100
35) 2,2-dichloropropane	8.67	77	351696	183.11	ug/kg	96
36) cis-1,2-dichloroethene	8.37	96	422613	172.42	ug/kg	99
37) ethyl acetate	8.63	43	154314	180.77	ug/kg	75

(#) = qualifier out of range (m) = manual integration

K33848.D K042409S.M Mon Apr 27 09:02:13 2009 MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33848.D
Acq On : 24 Apr 2009 3:41 pm
Sample : ic1192-200
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 08:58:56 2009

Vial: 7
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:43:07 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	240089	186.09	ug/kg	98
39) chloroform	8.58	83	659403	182.63	ug/kg	91
41) Tetrahydrofuran	8.92	42	105135	197.79	ug/kg	97
42) 1,1,1-trichloroethane	9.35	97	540141	205.89	ug/kg	95
43) n-Butyl Alcohol	9.34	TIC	1366919	931.07	ug/L #	100
45) Cyclohexane	9.62	56	374849m	186.22	ug/kg	
46) carbon tetrachloride	9.71	117	498491	210.21	ug/kg	98
47) 1,1-dichloropropene	9.51	75	490500	199.96	ug/kg	98
48) benzene	9.73	78	1399535	179.11	ug/kg	99
49) 1,2-dichloroethane	9.23	62	462278	195.67	ug/kg	95
50) tert-amyl methyl ether	9.85	73	1018625	203.79	ug/kg	99
51) heptane	10.21	43	387617	184.71	ug/kg	98
52) 2-Nitropropane	10.33	TIC	5048006	233.47	ug/L #	100
53) trichloroethene	10.35	95	401712	190.69	ug/kg	98
54) 1,2-dichloropropane	10.32	63	341786	187.38	ug/kg	100
55) dibromomethane	10.29	93	228068	198.08	ug/kg	96
56) bromodichloromethane	10.41	83	496493	206.22	ug/kg	96
57) Methylcyclohexane	10.88	83	407874	188.91	ug/kg	98
58) 2-chloroethyl vinyl ether	10.78	63	14166	305.47	ug/kg#	100
59) methyl methacrylate	10.50	69	259598	239.32	ug/kg	99
60) 1,4-dioxane	10.54	88	19269m	1765.77	ug/kg	
61) cis-1,3-dichloropropene	11.02	75	562272	209.41	ug/kg	97
63) 4-methyl-2-pentanone	11.12	43	316074	220.86	ug/kg	99
64) toluene	11.80	92	832684	185.90	ug/kg	99
65) trans-1,3-dichloropropene	11.44	75	476463	215.33	ug/kg	96
66) 1,1,2-trichloroethane	11.62	83	274090	202.38	ug/kg	96
67) ethyl methacrylate	11.82	69	397174	231.35	ug/kg	91
69) tetrachloroethene	12.55	166	424453	185.78	ug/kg	98
70) 1,3-dichloropropane	11.85	76	498178	183.76	ug/kg	99
71) dibromochloromethane	12.15	129	421815	221.95	ug/kg	99
72) 1,2-dibromoethane	12.40	107	366444	203.94	ug/kg	100
73) 2-hexanone	11.98	43	242626	239.52	ug/kg	97
74) chlorobenzene	13.23	112	999139	185.90	ug/kg	99
75) 1,1,1,2-tetrachloroethane	13.14	131	400665	200.13	ug/kg	99
76) ethylbenzene	13.40	91	1535921	193.48	ug/kg	99
77) m,p-xylene	13.59	106	1219983	381.05	ug/kg	99
78) o-xylene	14.00	106	606278	192.63	ug/kg	99
79) styrene	13.93	104	1032810	242.83	ug/kg	97
80) bromoform	13.75	173	297948	248.64	ug/kg	98
81) trans-1,4-dichloro-2-buten	14.15	53	111507	241.50	ug/kg#	85
83) isopropylbenzene	14.36	105	1297047	194.20	ug/kg	100
85) bromobenzene	14.65	156	478314	192.77	ug/kg	96
86) 1,1,2,2-tetrachloroethane	14.00	83	385747	186.49	ug/kg	96
87) 1,2,3-trichloropropane	14.15	75	459528	206.32	ug/kg	97
88) n-propylbenzene	14.81	91	1625587	193.72	ug/kg	100
89) 2-chlorotoluene	14.93	91	1052044	187.15	ug/kg	99
90) 4-chlorotoluene	15.00	91	1081978	198.07	ug/kg	99
91) 1,3,5-trimethylbenzene	15.08	105	1242354	196.64	ug/kg	99
92) tert-butylbenzene	15.39	91	654769	192.76	ug/kg	100

(#)=qualifier out of range (m)=manual integration

K33848.D K042409S.M

Mon Apr 27 09:02:14 2009

MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33848.D
Acq On : 24 Apr 2009 3:41 pm
Sample : ic1192-200
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 08:58:56 2009

Vial: 7
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:43:07 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	1287964	200.21	ug/kg	98
94) sec-butylbenzene	15.61	105	1509164	187.41	ug/kg	100
95) 1,3-dichlorobenzene	15.72	146	876190	187.10	ug/kg	99
96) p-isopropyltoluene	15.78	119	1332138	183.40	ug/kg	99
97) 1,4-dichlorobenzene	15.78	146	872513	175.10	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	892843	191.34	ug/kg	98
99) n-butylbenzene	16.20	91	1180916	199.85	ug/kg	100
100) 1,2-dibromo-3-chloropropan	16.63	75	63689	217.54	ug/kg	91
101) 1,2,4-trichlorobenzene	18.03	180	501517	226.20	ug/kg	97
102) hexachlorobutadiene	18.34	225	244238	162.58	ug/kg	97
103) naphthalene	18.32	128	1125802	222.33	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	377116	221.32	ug/kg	97

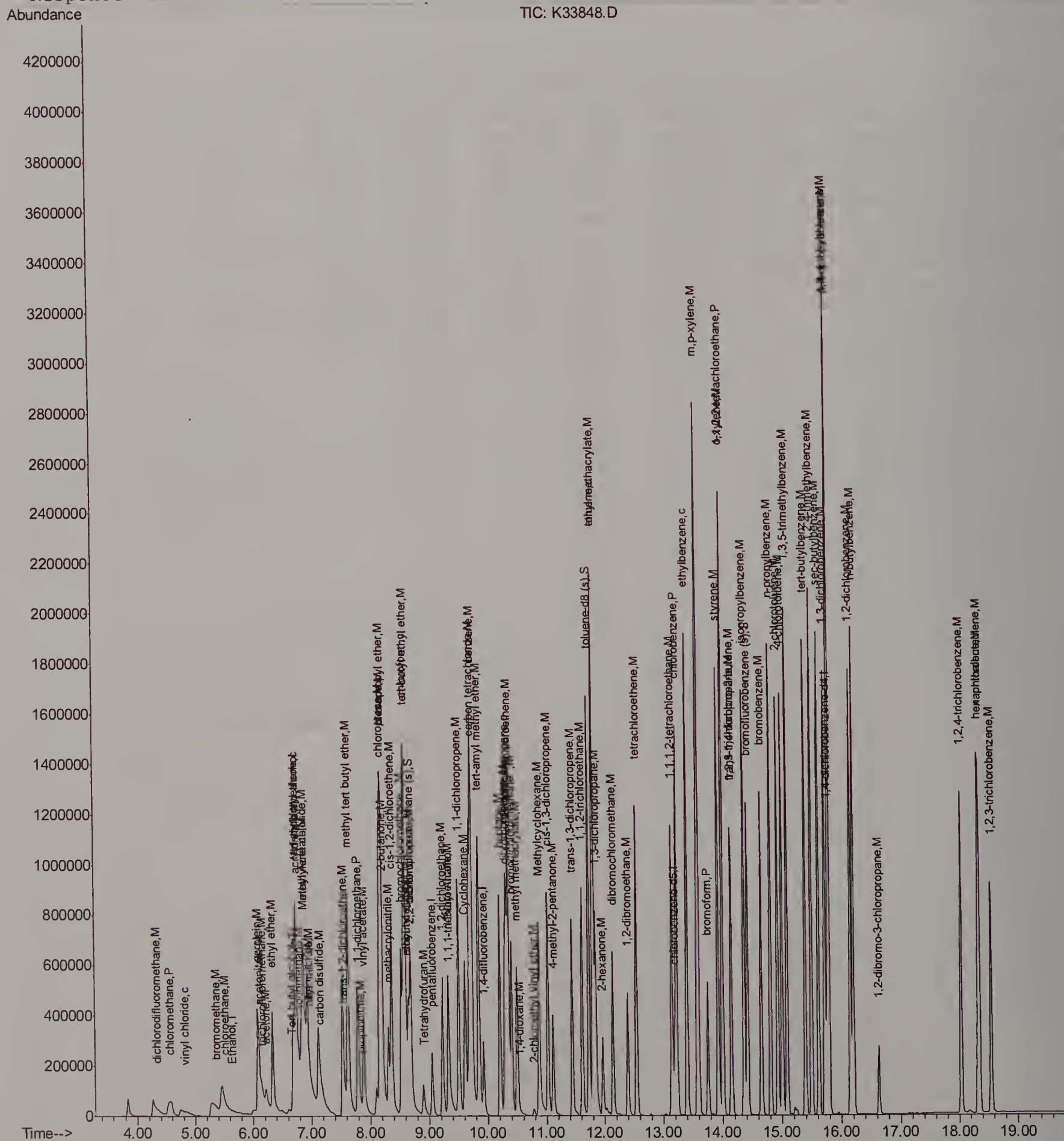
(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33848.D K042409S.M Mon Apr 27 09:02:14 2009 MSK

(QT Reviewed)

```
Vial: 7
Operator: RobertT
Inst      : gcms k
Multiplr: 1.00
```

Quant Results File: K042409S.RES

```
Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Fri Apr 24 15:43:07 2009
Response via  : Initial Calibration
```



6.6.6

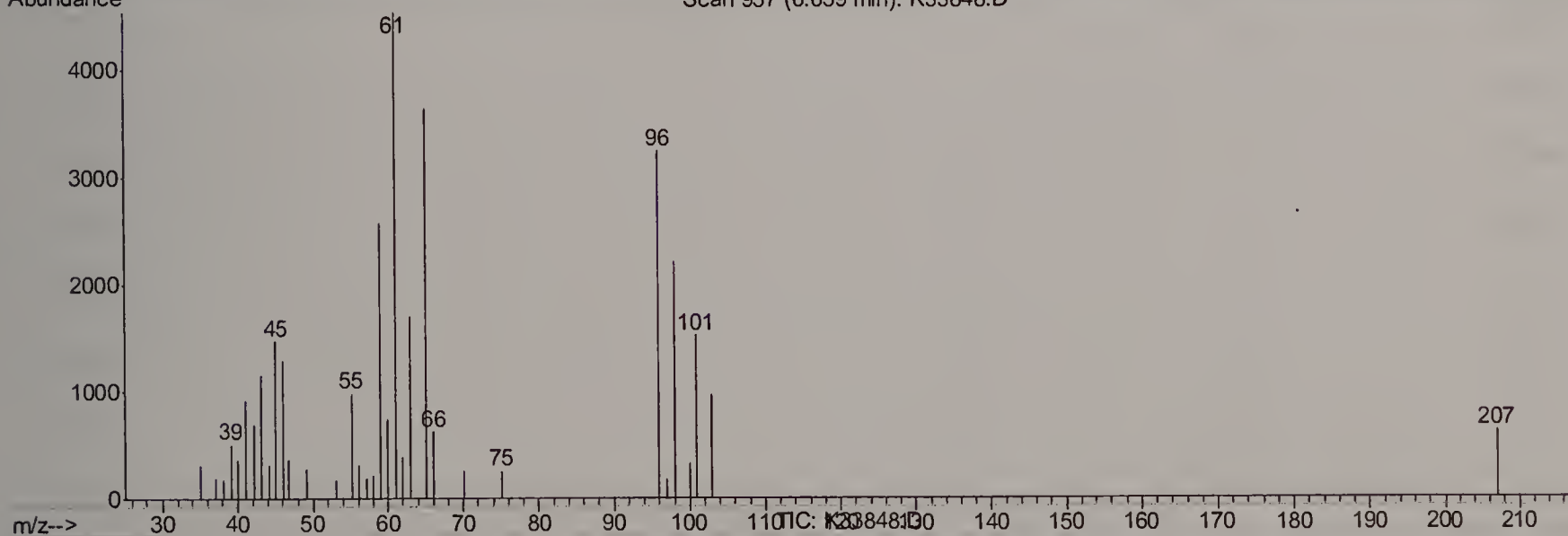
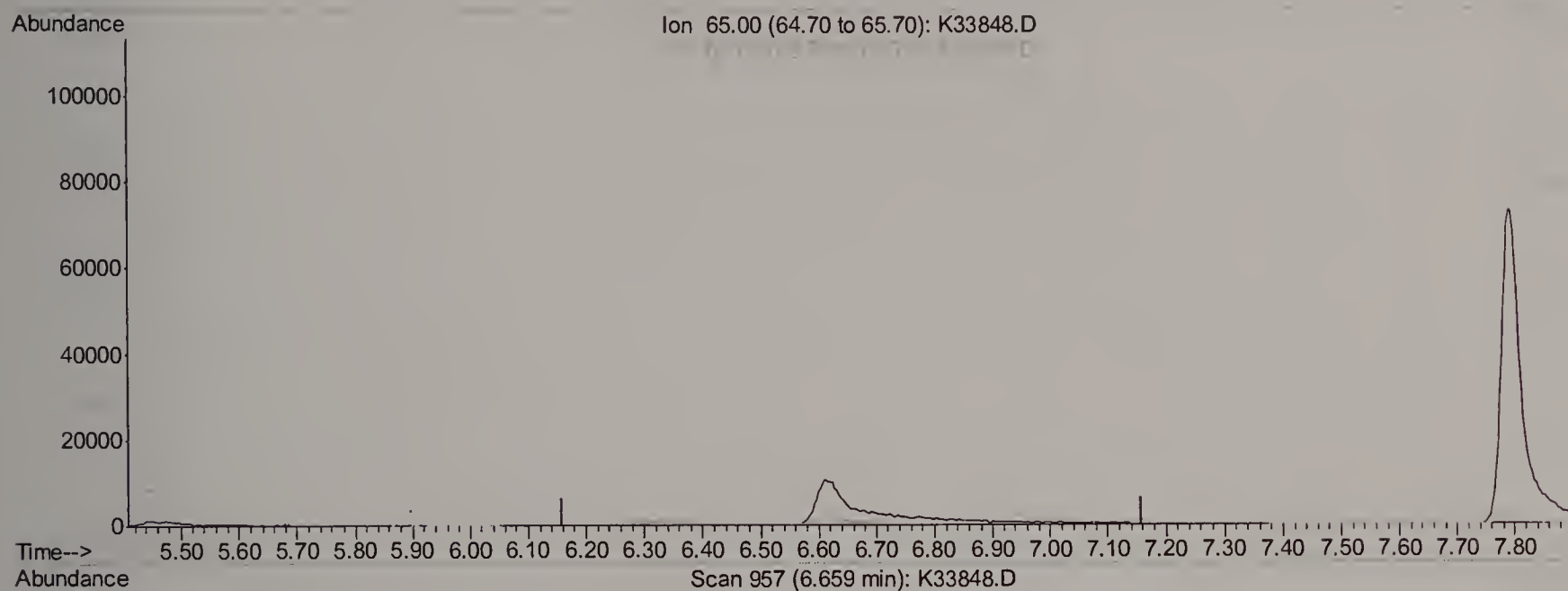
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33848.D
Acq On : 24 Apr 2009 3:41 pm
Sample : ic1192-200
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 8:58 2009

Vial: 7
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:43:07 2009
Response via : Multiple Level Calibration



(1) Tert butyl alcohol-d9

6.66min 0.00ug/kg

response 0

Ion	Exp%	Act%
65.00	100	0.00
66.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

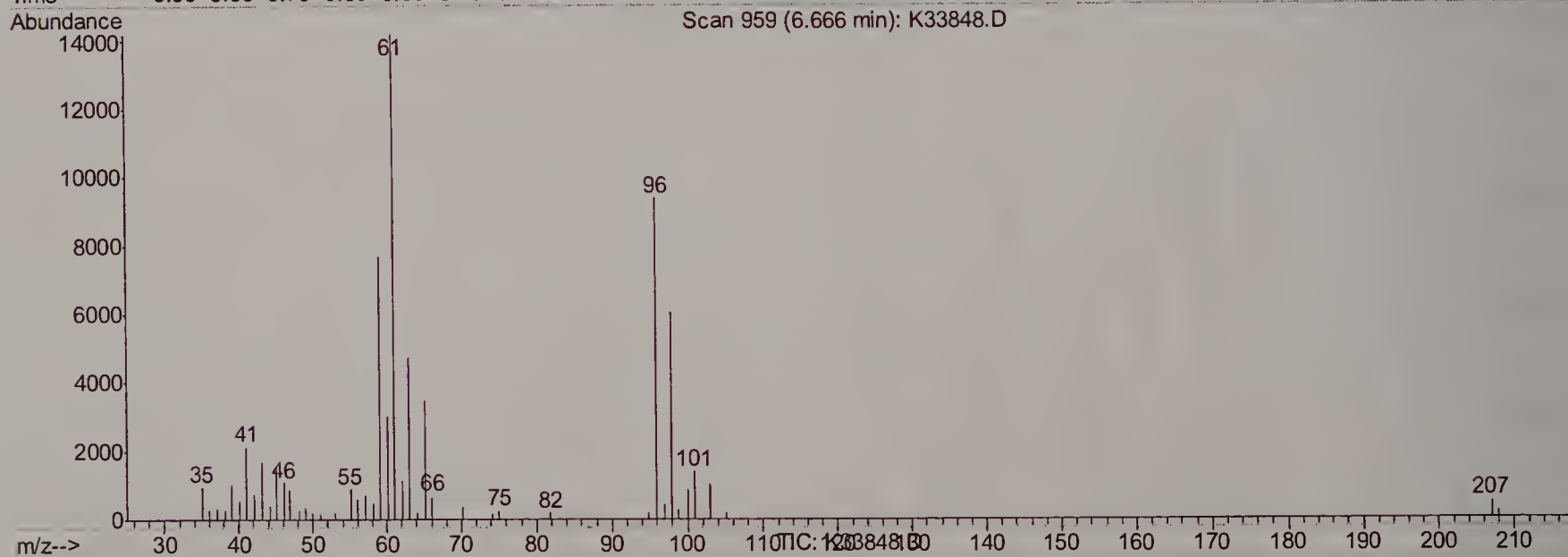
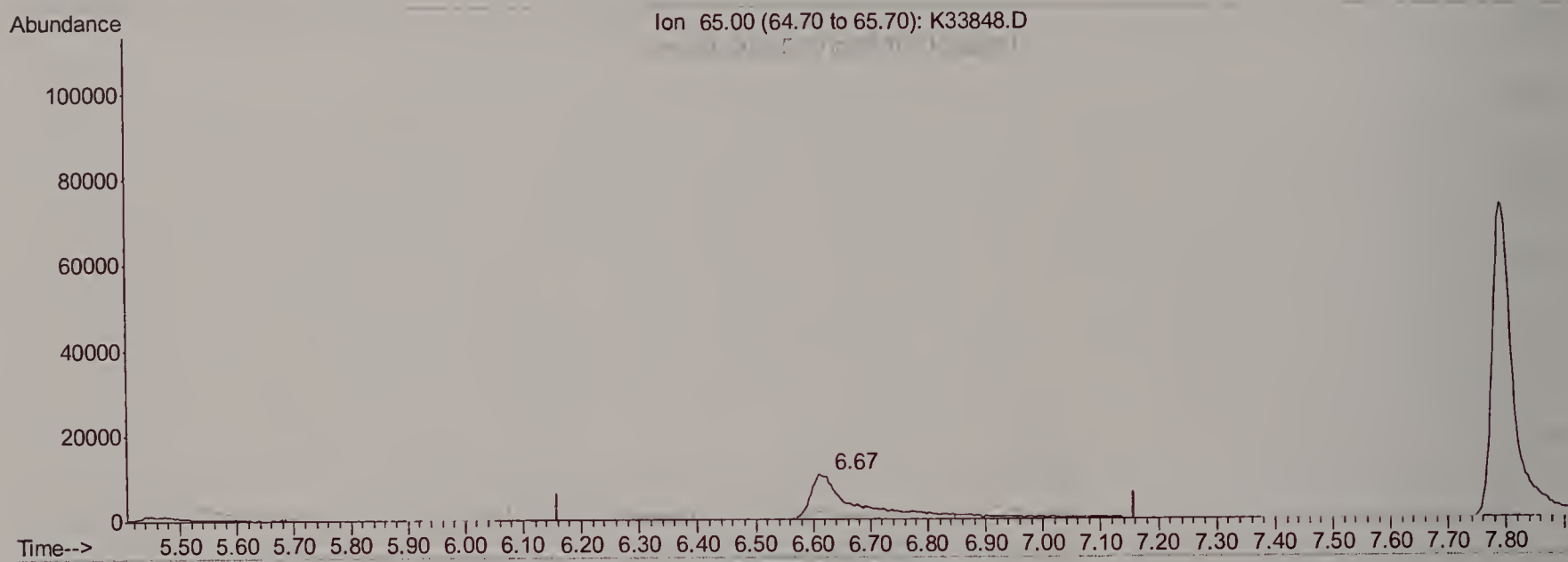
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33848.D
Acq On : 24 Apr 2009 3:41 pm
Sample : ic1192-200
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 8:59 2009

Vial: 7
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:43:07 2009
Response via : Multiple Level Calibration



(1) Tert butyl alcohol-d9

6.67min 500.00ug/kg m

response 54272

Ion	Exp%	Act%
65.00	100	100
66.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

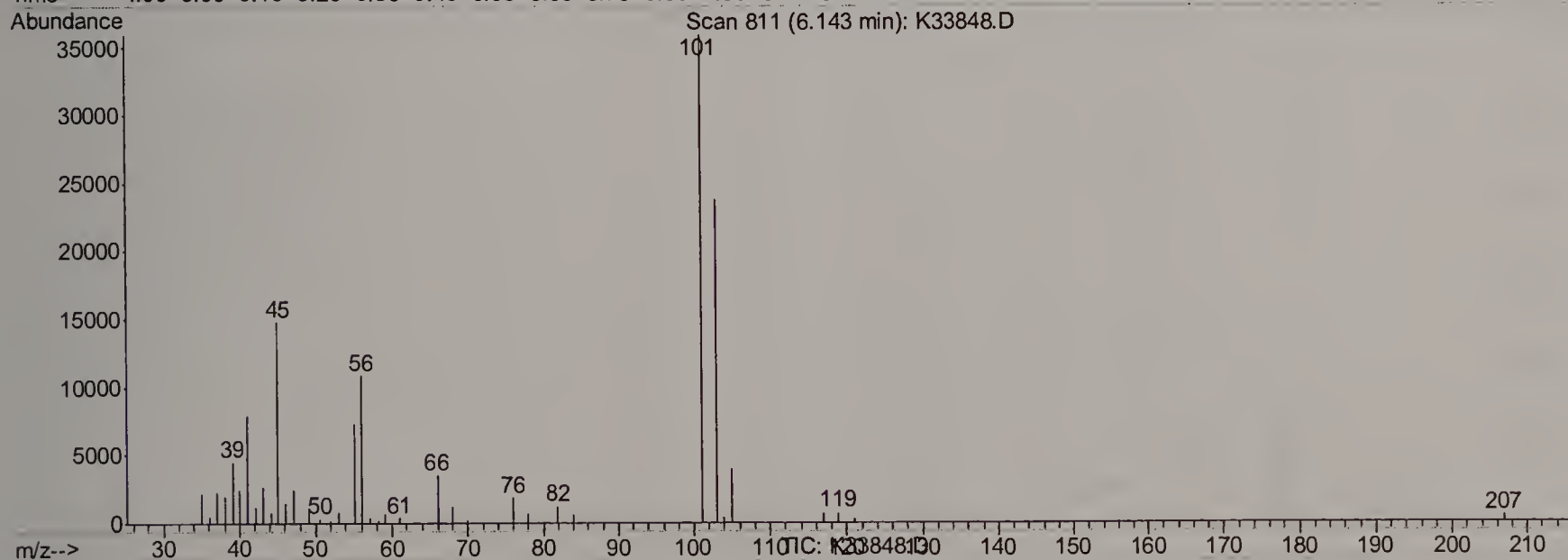
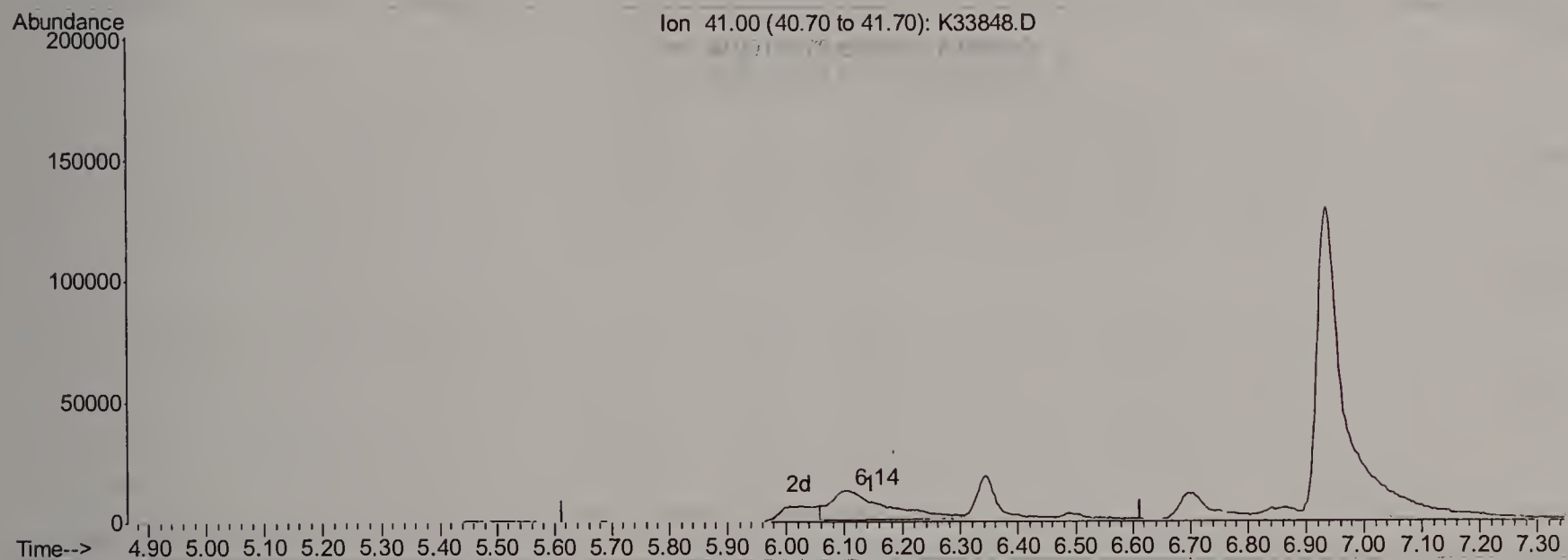
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33848.D
Acq On : 24 Apr 2009 3:41 pm
Sample : icl192-200
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 8:59 2009

Vial: 7
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:43:07 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.14min 171.57ug/kg

response 82961

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	33.16
39.00	58.00	62.33
0.00	0.00	0.00

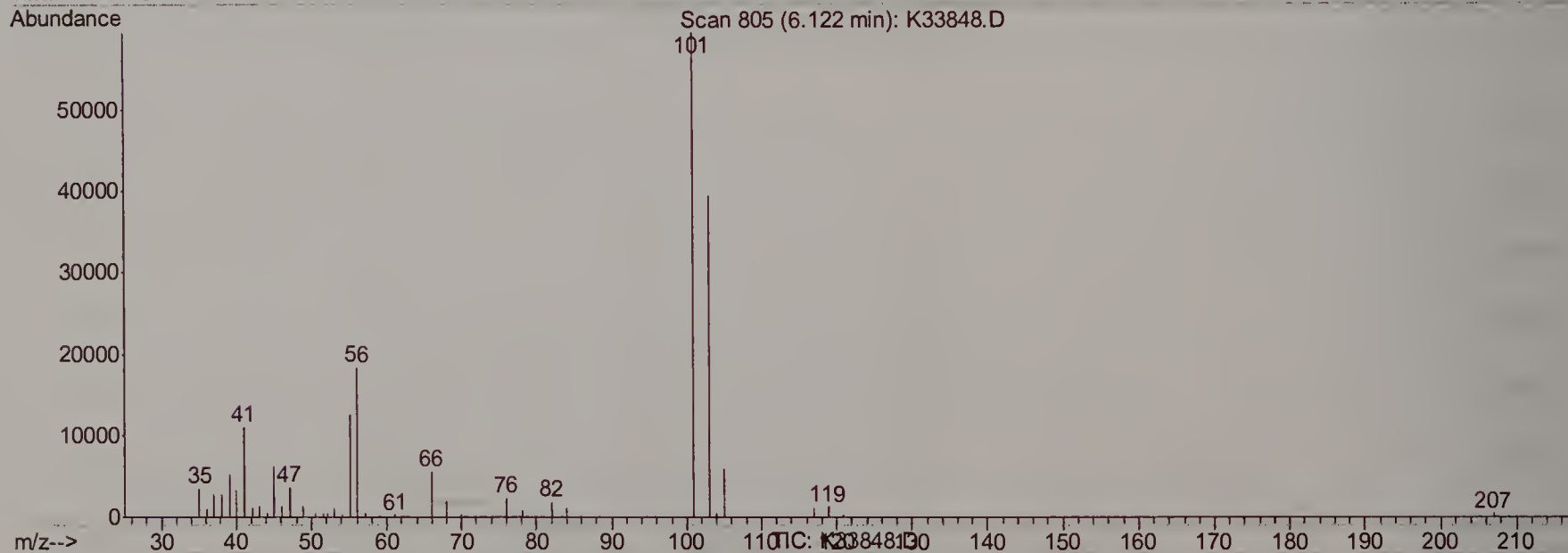
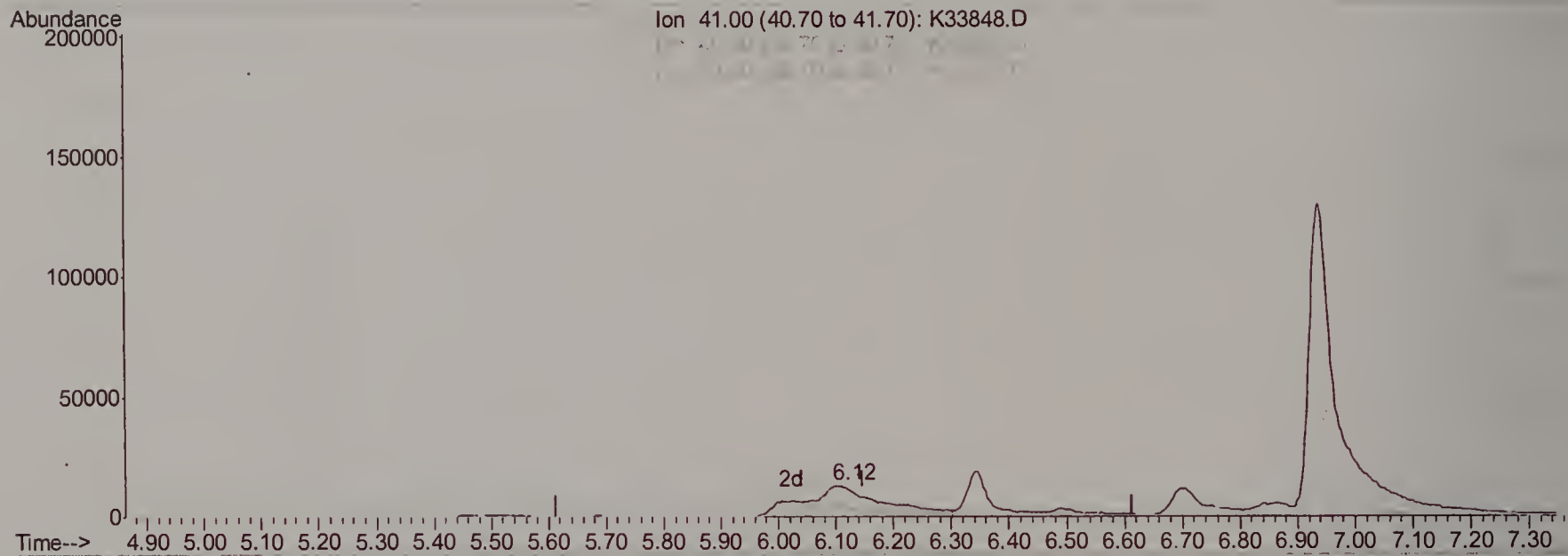
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33848.D
Acq On : 24 Apr 2009 3:41 pm
Sample : ic1192-200
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 8:59 2009

Vial: 7
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Fri Apr 24 15:43:07 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.12min 254.77ug/kg m

response 123193

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	29.72
39.00	58.00	48.13
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33849.D
 Acq On : 24 Apr 2009 4:07 pm
 Sample : ic1192-100
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 09:02:54 2009

Vial: 8
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:02:35 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	57427m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	215629	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	292280	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	120816	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.75	152	137969	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	208661	98.06	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	196.12%#
62) toluene-d8 (s)	11.73	98	691644	101.02	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	202.04%#
84) bromofluorobenzene (s)	14.42	95	234077	96.47	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	192.94%#

Target Compounds

						Qvalue
2) tertiary butyl alcohol	6.72	59	143555	996.36	ug/kg	90
3) Ethanol	5.64	45	173807	9851.73	ug/kg#	100
5) dichlorodifluoromethane	4.35	85	113237	90.71	ug/kg	94
6) chloromethane	4.57	50	88167	86.55	ug/kg	98
7) vinyl chloride	4.84	62	63891	100.99	ug/kg	97
8) bromomethane	5.38	96	96968	83.16	ug/kg	98
9) chloroethane	5.52	64	93586	101.52	ug/kg	91
10) ethyl ether	6.35	59	156561	99.74	ug/kg	96
11) acetonitrile	6.13	41	59432m	112.96	ug/kg	
12) trichlorofluoromethane	6.18	101	246287m	94.10	ug/kg	
13) freon-113	6.97	101	133595m	99.56	ug/kg	
14) acrolein	6.11	56	162771	549.86	ug/kg	100
15) 1,1-dichloroethene	6.74	96	147720m	87.71	ug/kg	
16) acetone	6.25	43	54092	101.18	ug/kg	96
17) Methyl Acetate	6.89	43	264265	99.91	ug/kg#	94
18) methylene chloride	6.88	84	181176	90.45	ug/kg	92
19) methyl tert butyl ether	7.64	73	551499	97.56	ug/kg	97
20) acrylonitrile	6.76	53	363882	542.46	ug/kg	96
21) allyl chloride	6.98	41	246297	96.03	ug/kg	97
22) trans-1,2-dichloroethene	7.57	96	210252	93.26	ug/kg	98
23) iodomethane	6.80	142	309226m	101.53	ug/kg	
24) carbon disulfide	7.16	76	492318	95.36	ug/kg	100
25) propionitrile	7.85	54	26557	126.64	ug/kg	100
26) vinyl acetate	7.90	43	367970	108.28	ug/kg	100
27) chloroprene	8.17	53	283261	103.37	ug/kg	100
28) di-isopropyl ether	8.21	45	567133	95.57	ug/kg	95
29) methacrylonitrile	8.33	41	112052	86.95	ug/kg	96
30) 2-butanone	8.22	72	26913	81.75	ug/kg#	49
31) Hexane	8.19	41	219338	90.93	ug/kg	93
32) 1,1-dichloroethane	7.81	63	327125	96.40	ug/kg	99
33) tert-butyl ethyl ether	8.60	59	566836	101.26	ug/kg	98
34) isobutyl alcohol	8.63	43	83531	473.83	ug/kg	89
35) 2,2-dichloropropane	8.67	77	184919	94.93	ug/kg	97
36) cis-1,2-dichloroethene	8.37	96	223595	90.51	ug/kg	99
37) ethyl acetate	8.63	43	83531	96.72	ug/kg	85

(#)=qualifier out of range (m)=manual integration

K33849.D K042409S.M Mon Apr 27 09:04:29 2009 MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33849.D
 Acq On : 24 Apr 2009 4:07 pm
 Sample : ic1192-100
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 09:02:54 2009

Vial: 8
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:02:35 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	126258	96.20	ug/kg	97
39) chloroform	8.58	83	349616	95.24	ug/kg	96
41) Tetrahydrofuran	8.92	42	54010	98.72	ug/kg	86
42) 1,1,1-trichloroethane	9.35	97	274154	100.81	ug/kg	97
43) n-Butyl Alcohol	9.34	TIC	679580	453.93	ug/L #	100
45) Cyclohexane	9.62	56	187118m	88.87	ug/kg	
46) carbon tetrachloride	9.71	117	254524	100.34	ug/kg	97
47) 1,1-dichloropropene	9.51	75	252223	96.95	ug/kg	98
48) benzene	9.73	78	747027	91.74	ug/kg	100
49) 1,2-dichloroethane	9.23	62	238935	95.70	ug/kg	96
50) tert-amyl methyl ether	9.85	73	539942	101.53	ug/kg	99
51) heptane	10.21	43	197282	89.78	ug/kg	98
52) 2-Nitropropane	10.33	TIC	2710993m	115.01	ug/L	
53) trichloroethene	10.35	95	212414	95.81	ug/kg	95
54) 1,2-dichloropropane	10.32	63	183109	95.86	ug/kg	99
55) dibromomethane	10.29	93	119502	98.04	ug/kg	96
56) bromodichloromethane	10.41	83	256381	99.78	ug/kg	96
57) Methylcyclohexane	10.88	83	207731	91.73	ug/kg	98
58) 2-chloroethyl vinyl ether	10.78	63	7051	126.66	ug/kg	100
59) methyl methacrylate	10.50	69	134750	112.69	ug/kg	96
60) 1,4-dioxane	10.54	88	9851	714.36	ug/kg#	100
61) cis-1,3-dichloropropene	11.02	75	294225	102.51	ug/kg	97
63) 4-methyl-2-pentanone	11.12	43	162638	104.96	ug/kg	99
64) toluene	11.80	92	455010	96.92	ug/kg	100
65) trans-1,3-dichloropropene	11.44	75	247361	103.81	ug/kg	97
66) 1,1,2-trichloroethane	11.62	83	142844	99.21	ug/kg	97
67) ethyl methacrylate	11.82	69	211077	112.40	ug/kg	90
69) tetrachloroethene	12.55	166	220763	88.27	ug/kg	98
70) 1,3-dichloropropane	11.85	76	267066	90.14	ug/kg	96
71) dibromochloromethane	12.15	129	211766	98.42	ug/kg	97
72) 1,2-dibromoethane	12.40	107	187621	93.88	ug/kg	99
73) 2-hexanone	11.98	43	118617	101.68	ug/kg	97
74) chlorobenzene	13.23	112	523512	88.97	ug/kg	99
75) 1,1,1,2-tetrachloroethane	13.14	131	203788	91.87	ug/kg	97
76) ethylbenzene	13.40	91	806771	92.24	ug/kg	99
77) m,p-xylene	13.59	106	652523	185.43	ug/kg	99
78) o-xylene	14.00	106	318614	91.94	ug/kg	98
79) styrene	13.93	104	523555	107.28	ug/kg	98
80) bromoform	13.75	173	141994	102.00	ug/kg	100
81) trans-1,4-dichloro-2-buten	14.15	53	53693	99.79	ug/kg	97
83) isopropylbenzene	14.36	105	665768	99.03	ug/kg	100
85) bromobenzene	14.65	156	242614	97.26	ug/kg	97
86) 1,1,2,2-tetrachloroethane	14.00	83	201325	97.55	ug/kg	95
87) 1,2,3-trichloropropane	14.15	75	230206	101.55	ug/kg	98
88) n-propylbenzene	14.81	91	830138	98.32	ug/kg	99
89) 2-chlorotoluene	14.93	91	538559	95.75	ug/kg	100
90) 4-chlorotoluene	15.00	91	545416	98.88	ug/kg	98
91) 1,3,5-trimethylbenzene	15.08	105	631919	99.17	ug/kg	99
92) tert-butylbenzene	15.39	91	329704	96.55	ug/kg	99

(#) = qualifier out of range (m) = manual integration

K33849.D K042409S.M

Mon Apr 27 09:04:30 2009

MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33849.D
Acq On : 24 Apr 2009 4:07 pm
Sample : ic1192-100
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 09:02:54 2009

Vial: 8
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:02:35 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	659033	101.27	ug/kg	98
94) sec-butylbenzene	15.61	105	760068	94.31	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	446728	95.34	ug/kg	99
96) p-isopropyltoluene	15.78	119	682925	94.26	ug/kg	99
97) 1,4-dichlorobenzene	15.78	146	456242	92.44	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	456528	97.43	ug/kg	98
99) n-butylbenzene	16.20	91	593569	99.33	ug/kg	100
100) 1,2-dibromo-3-chloropropan	16.63	75	31237	103.67	ug/kg	93
101) 1,2,4-trichlorobenzene	18.03	180	251894	109.93	ug/kg	98
102) hexachlorobutadiene	18.34	225	130156	88.99	ug/kg	100
103) naphthalene	18.32	128	565843	108.46	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	194885	110.72	ug/kg	99

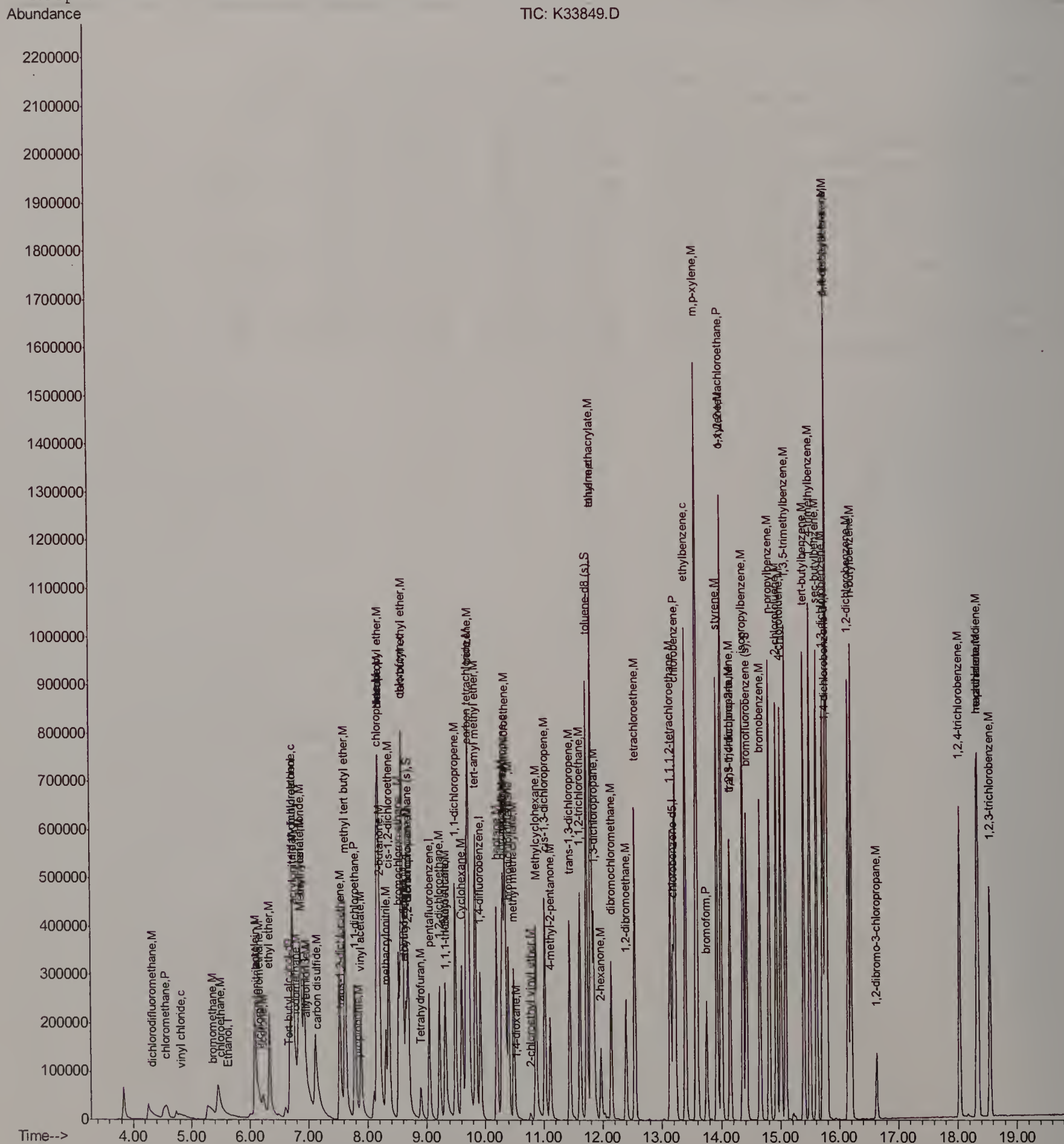
(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33849.D K042409S.M Mon Apr 27 09:04:30 2009 MSK

(QT Reviewed)

Vial: 8
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

```
Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Mon Apr 27 09:02:35 2009
Response via  : Initial Calibration
```



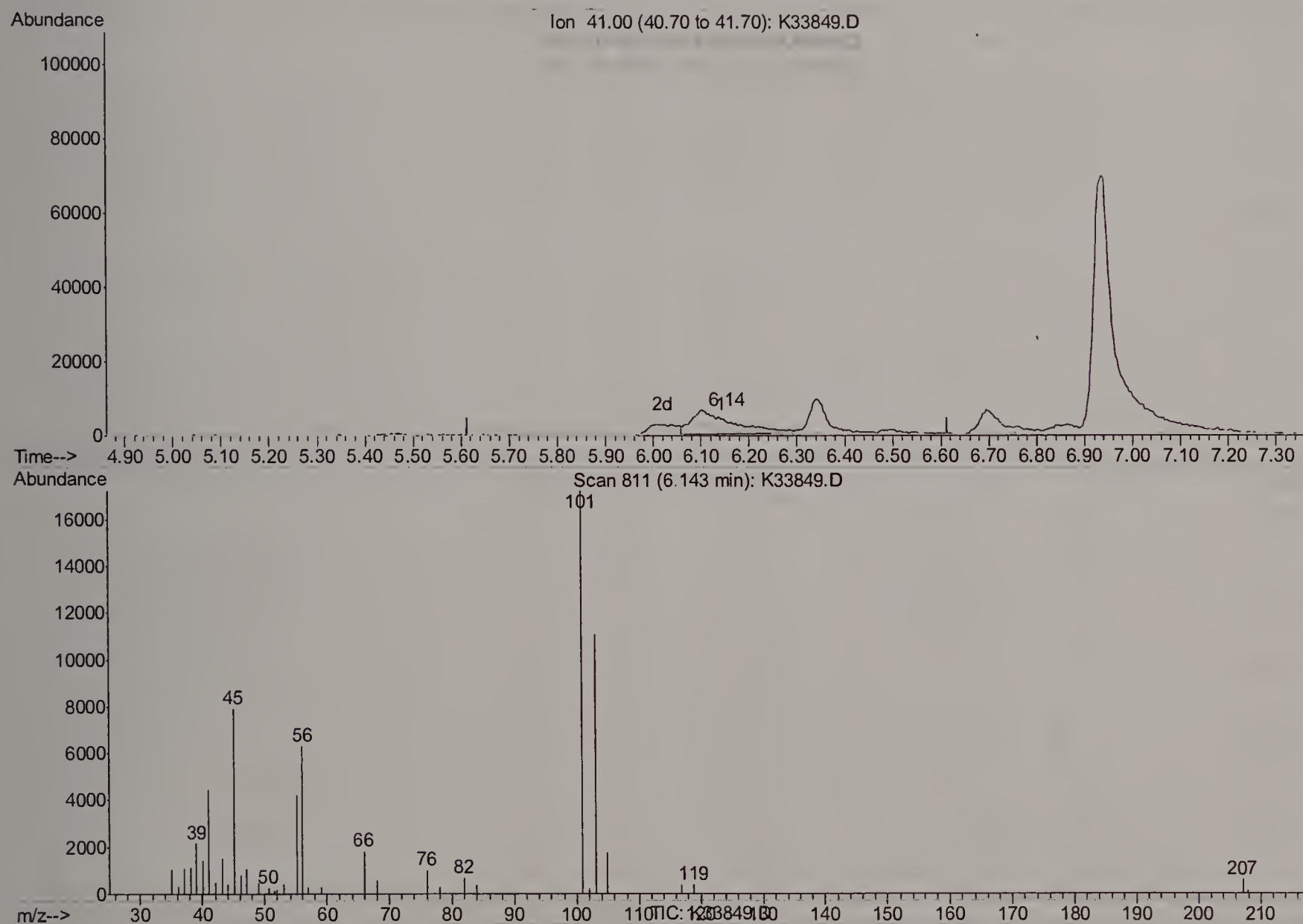
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33849.D
Acq On : 24 Apr 2009 4:07 pm
Sample : ic1192-100
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 9:03 2009

Vial: 8
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:02:35 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.14min 75.34ug/kg

response 39639

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	32.04
39.00	58.00	44.38
0.00	0.00	0.00

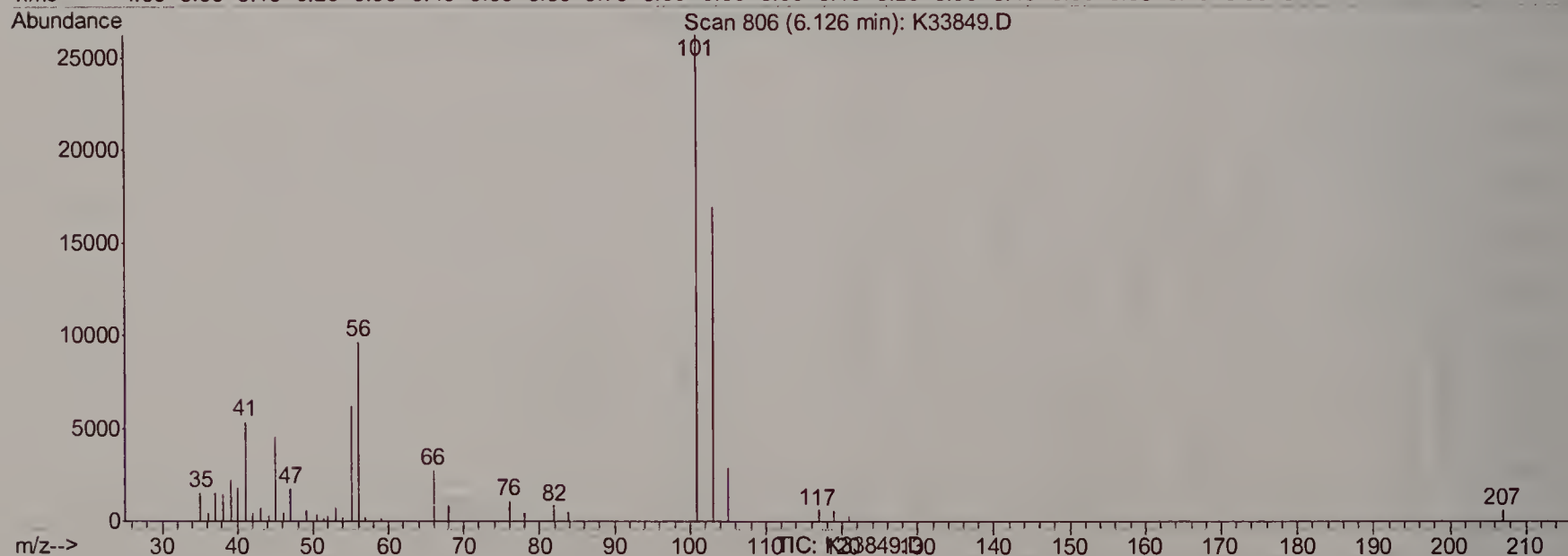
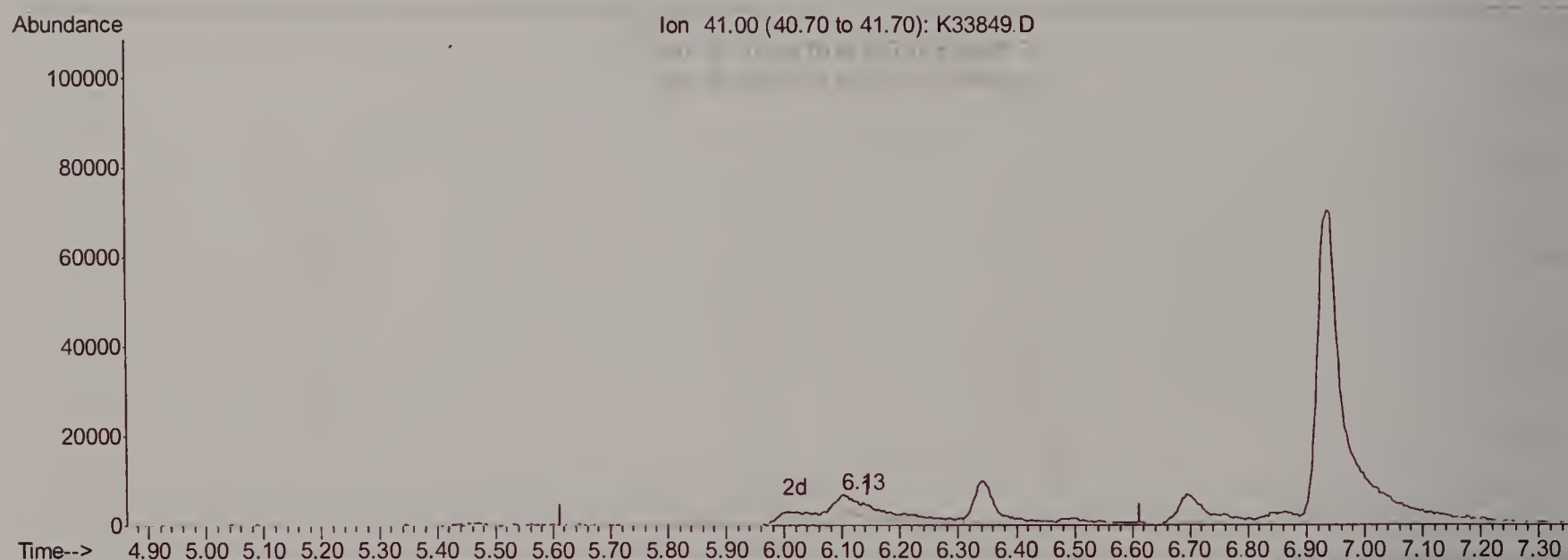
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33849.D
Acq On : 24 Apr 2009 4:07 pm
Sample : ic1192-100
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 9:03 2009

Vial: 8
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:02:35 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 112.96ug/kg m

response 59432

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	34.35
39.00	58.00	42.36
0.00	0.00	0.00

Manual Integrations
APPROVED
(compounds with "m" flag)

Doug Yargeau
04/27/09 13:55

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33850.D
Acq On : 24 Apr 2009 4:34 pm
Sample : icc1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 09:09:40 2009

Vial: 9
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:09:09 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	55760m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	216462	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	292773	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	116629	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	136798	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	106395	49.97	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	99.94%
62) toluene-d8 (s)	11.73	98	356353	51.88	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	103.76%
84) bromofluorobenzene (s)	14.42	95	116908	48.88	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	97.76%

Target Compounds

						Qvalue
2) tertiary butyl alcohol	6.72	59	72254	516.79	ug/kg	98
3) Ethanol	5.64	45	84550	4947.97	ug/kg#	100
5) dichlorodifluoromethane	4.35	85	62411	50.59	ug/kg	97
6) chloromethane	4.57	50	47098	47.11	ug/kg	99
7) vinyl chloride	4.83	62	35221	55.37	ug/kg	96
8) bromomethane	5.37	96	50730	51.64	ug/kg	93
9) chloroethane	5.52	64	47953m	51.69	ug/kg	
10) ethyl ether	6.36	59	78942	50.12	ug/kg	93
11) acetonitrile	6.13	41	30240m	48.80	ug/kg	
12) trichlorofluoromethane	6.18	101	132691m	51.00	ug/kg	
13) freon-113	6.96	101	74405m	55.27	ug/kg	
14) acrolein	6.11	56	82301	272.43	ug/kg	100
15) 1,1-dichloroethene	6.75	96	82141	49.60	ug/kg	96
16) acetone	6.25	43	25608	47.62	ug/kg	99
17) Methyl Acetate	6.90	43	137865	51.93	ug/kg#	95
18) methylene chloride	6.88	84	93687	47.24	ug/kg	97
19) methyl tert butyl ether	7.64	73	280694	49.64	ug/kg	99
20) acrylonitrile	6.76	53	179310	250.33	ug/kg	95
21) allyl chloride	6.97	41	129944	50.81	ug/kg	93
22) trans-1,2-dichloroethene	7.56	96	109970	49.06	ug/kg	94
23) iodomethane	6.80	142	160683m	49.88	ug/kg	
24) carbon disulfide	7.16	76	254308	49.39	ug/kg	100
25) propionitrile	7.85	54	12191	47.18	ug/kg	100
26) vinyl acetate	7.91	43	178560	51.63	ug/kg	96
27) chloroprene	8.17	53	146847	53.12	ug/kg	98
28) di-isopropyl ether	8.21	45	293598	49.60	ug/kg	97
29) methacrylonitrile	8.33	41	56334	51.88	ug/kg	98
30) 2-butanone	8.23	72	14120	49.72	ug/kg#	77
31) Hexane	8.19	41	120758	50.52	ug/kg	94
32) 1,1-dichloroethane	7.80	63	170307	50.25	ug/kg	95
33) tert-butyl ethyl ether	8.60	59	291428	51.77	ug/kg	97
34) isobutyl alcohol	8.63	43	41995	239.39	ug/kg	93
35) 2,2-dichloropropane	8.67	77	97811	50.45	ug/kg	93
36) cis-1,2-dichloroethene	8.37	96	115986	47.41	ug/kg	98
37) ethyl acetate	8.63	43	41995	48.70	ug/kg	84

(#) = qualifier out of range (m) = manual integration

K33850.D K042409S.M

Mon Apr 27 09:19:24 2009

MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33850.D
 Acq On : 24 Apr 2009 4:34 pm
 Sample : icc1192-50
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 09:09:40 2009

Vial: 9
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:09:09 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	64223	49.06	ug/kg	98
39) chloroform	8.58	83	180034	49.19	ug/kg	96
41) Tetrahydrofuran	8.92	42	26588	48.51	ug/kg	100
42) 1,1,1-trichloroethane	9.35	97	142655	52.19	ug/kg	98
43) n-Butyl Alcohol	9.34	TIC	363674	245.21	ug/L #	100
45) Cyclohexane	9.62	56	105608m	51.02	ug/kg	
46) carbon tetrachloride	9.71	117	134446	52.89	ug/kg	97
47) 1,1-dichloropropene	9.51	75	132845	51.20	ug/kg	99
48) benzene	9.73	78	395622	49.08	ug/kg	100
49) 1,2-dichloroethane	9.23	62	122717	49.37	ug/kg	96
50) tert-amyl methyl ether	9.85	73	276539	51.80	ug/kg	99
51) heptane	10.21	43	108545	50.04	ug/kg	99
52) 2-Nitropropane	10.33	TIC	1401786m	51.93	ug/L	
53) trichloroethene	10.35	95	110651	50.13	ug/kg	99
54) 1,2-dichloropropane	10.32	63	94928	49.96	ug/kg	100
55) dibromomethane	10.29	93	60394	49.63	ug/kg	97
56) bromodichloromethane	10.41	83	128089	49.78	ug/kg	100
57) Methylcyclohexane	10.88	83	115640	51.69	ug/kg	98
58) 2-chloroethyl vinyl ether	10.78	63	3144	46.63	ug/kg#	100
59) methyl methacrylate	10.50	69	65026	53.17	ug/kg	97
60) 1,4-dioxane	10.54	88	4741	251.68	ug/kg#	100
61) cis-1,3-dichloropropene	11.02	75	147730	51.20	ug/kg	96
63) 4-methyl-2-pentanone	11.12	43	79421	50.75	ug/kg	99
64) toluene	11.80	92	239975	51.25	ug/kg	100
65) trans-1,3-dichloropropene	11.44	75	122545	51.02	ug/kg	98
66) 1,1,2-trichloroethane	11.62	83	72594	50.40	ug/kg	99
67) ethyl methacrylate	11.82	69	102983	53.64	ug/kg	92
69) tetrachloroethene	12.55	166	116058	48.89	ug/kg	97
70) 1,3-dichloropropane	11.85	76	137066	48.61	ug/kg	93
71) dibromochloromethane	12.15	129	103538	49.98	ug/kg	96
72) 1,2-dibromoethane	12.40	107	93385	48.90	ug/kg	98
73) 2-hexanone	11.98	43	56819	50.31	ug/kg	96
74) chlorobenzene	13.23	112	268142	47.96	ug/kg	98
75) 1,1,1,2-tetrachloroethane	13.14	131	104296	49.37	ug/kg	99
76) ethylbenzene	13.40	91	423063	50.67	ug/kg	99
77) m,p-xylene	13.59	106	343897	102.30	ug/kg	99
78) o-xylene	14.00	106	166745	50.43	ug/kg	98
79) styrene	13.93	104	260891	52.49	ug/kg	97
80) bromoform	13.75	173	66561	49.37	ug/kg	100
81) trans-1,4-dichloro-2-buten	14.15	53	25075	48.30	ug/kg	94
83) isopropylbenzene	14.36	105	346579	52.07	ug/kg	99
85) bromobenzene	14.65	156	122979	49.92	ug/kg	98
86) 1,1,2,2-tetrachloroethane	14.00	83	101632	49.87	ug/kg	98
87) 1,2,3-trichloropropane	14.15	75	112185	49.78	ug/kg	95
88) n-propylbenzene	14.81	91	432198	51.75	ug/kg	98
89) 2-chlorotoluene	14.93	91	276210	49.83	ug/kg	100
90) 4-chlorotoluene	15.00	91	281139	51.49	ug/kg	98
91) 1,3,5-trimethylbenzene	15.08	105	327960	51.97	ug/kg	98
92) tert-butylbenzene	15.39	91	171931	51.03	ug/kg	99

(#) = qualifier out of range (m) = manual integration

K33850.D K042409S.M

Mon Apr 27 09:19:24 2009

MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33850.D
Acq On : 24 Apr 2009 4:34 pm
Sample : icc1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 09:09:40 2009

Vial: 9
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:09:09 2009
Response via : Initial Calibration
DataAcq Meth : K8260

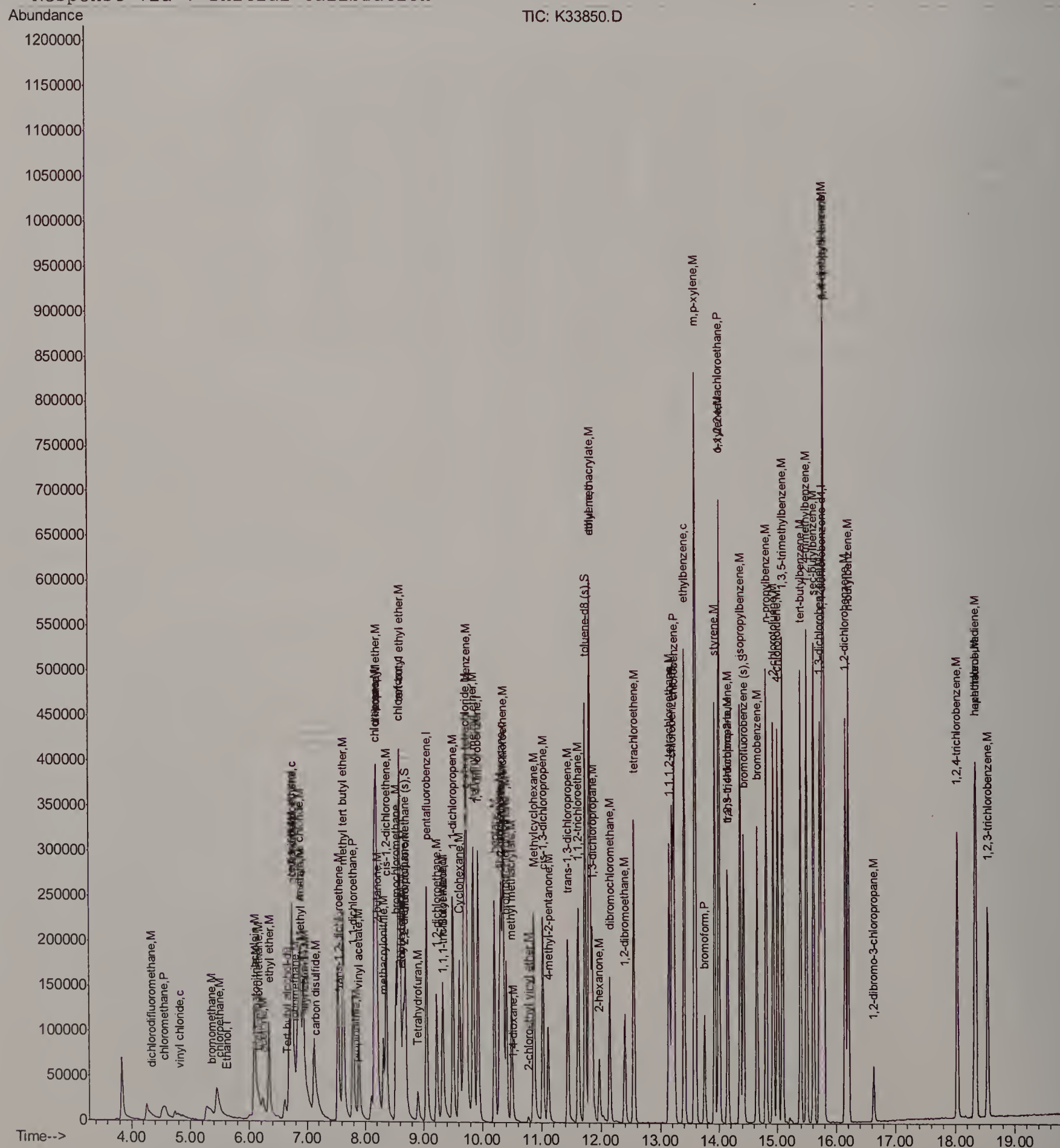
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	336510	52.06	ug/kg	99
94) sec-butylbenzene	15.61	105	406041	51.23	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	225400	48.84	ug/kg	99
96) p-isopropyltoluene	15.78	119	361902	50.80	ug/kg	99
97) 1,4-dichlorobenzene	15.78	146	235696	48.69	ug/kg	99
98) 1,2-dichlorobenzene	16.15	146	229081	49.49	ug/kg	98
99) n-butylbenzene	16.20	91	306364	51.75	ug/kg	99
100) 1,2-dibromo-3-chloropropan	16.63	75	14619	48.64	ug/kg	97
101) 1,2,4-trichlorobenzene	18.03	180	123525	53.61	ug/kg	97
102) hexachlorobutadiene	18.34	225	70494	55.12	ug/kg	99
103) naphthalene	18.32	128	271029	51.77	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	94802	53.37	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33850.D K042409S.M Mon Apr 27 09:19:24 2009 MSK

(QT Reviewed)

Vial: 9
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

```
Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Mon Apr 27 09:11:43 2009
Response via  : Initial Calibration
```



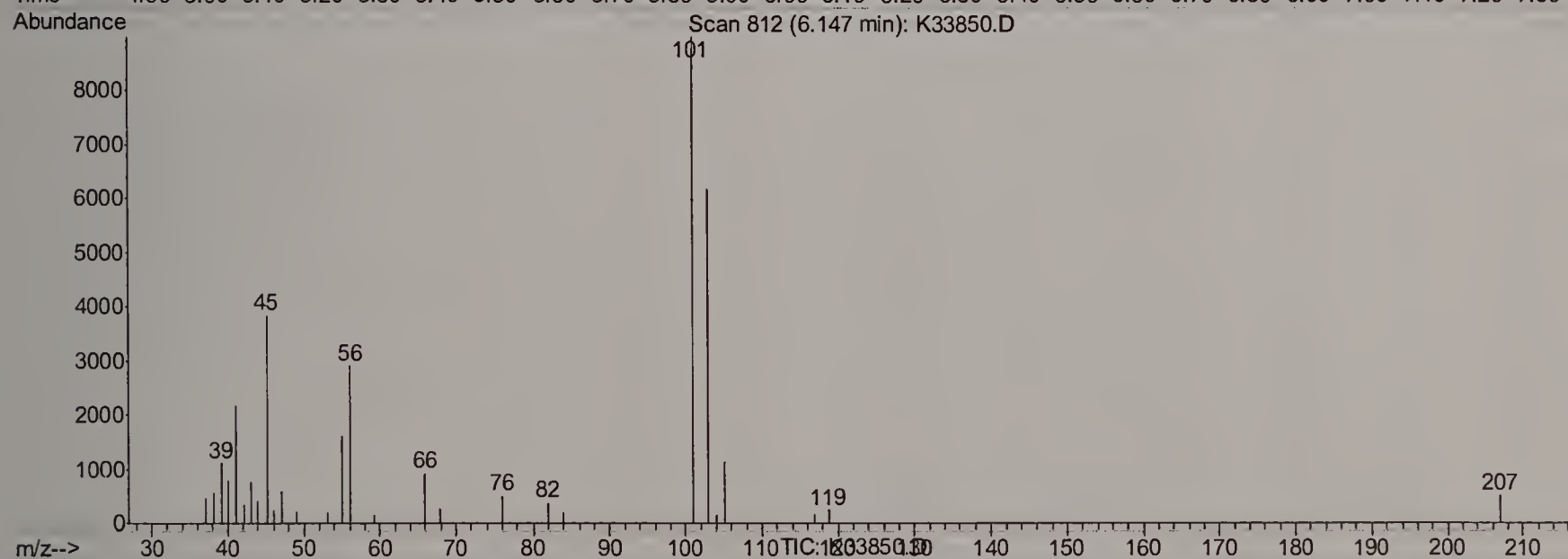
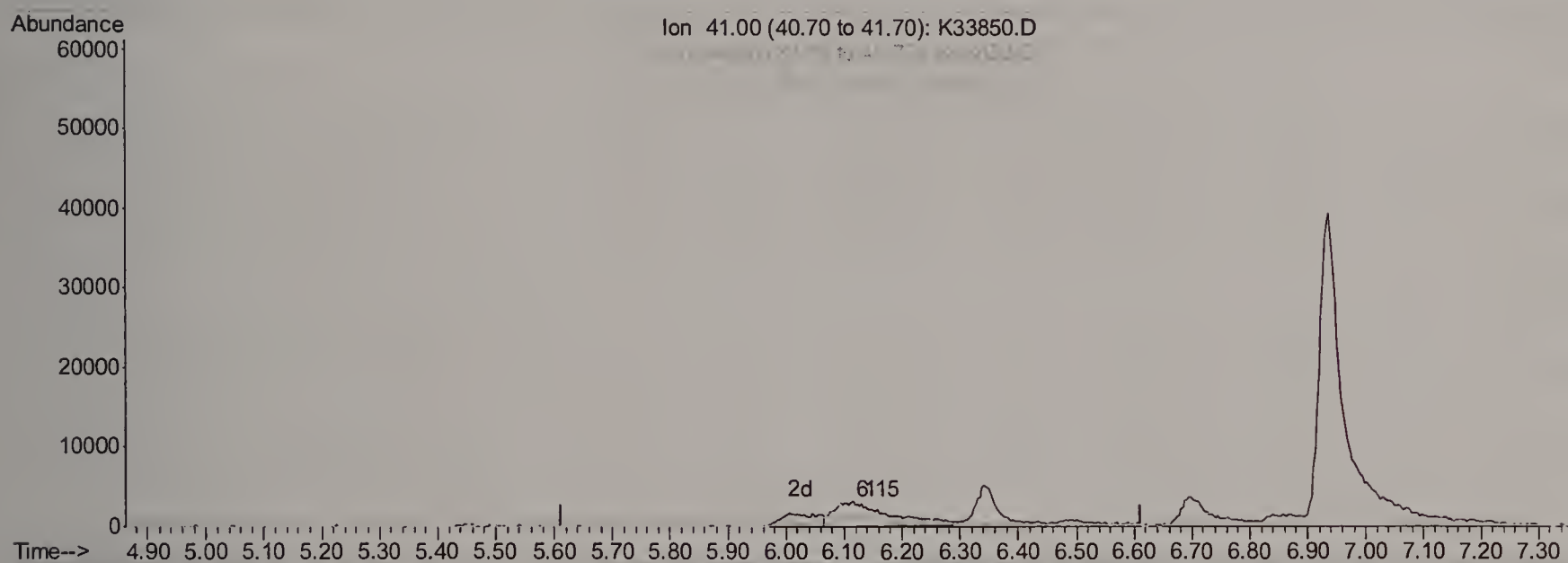
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33850.D
Acq On : 24 Apr 2009 4:34 pm
Sample : ic1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 9:10 2009

Vial: 9
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:09:09 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.15min 31.97ug/kg

response 20102

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	33.10
39.00	58.00	44.26
0.00	0.00	0.00

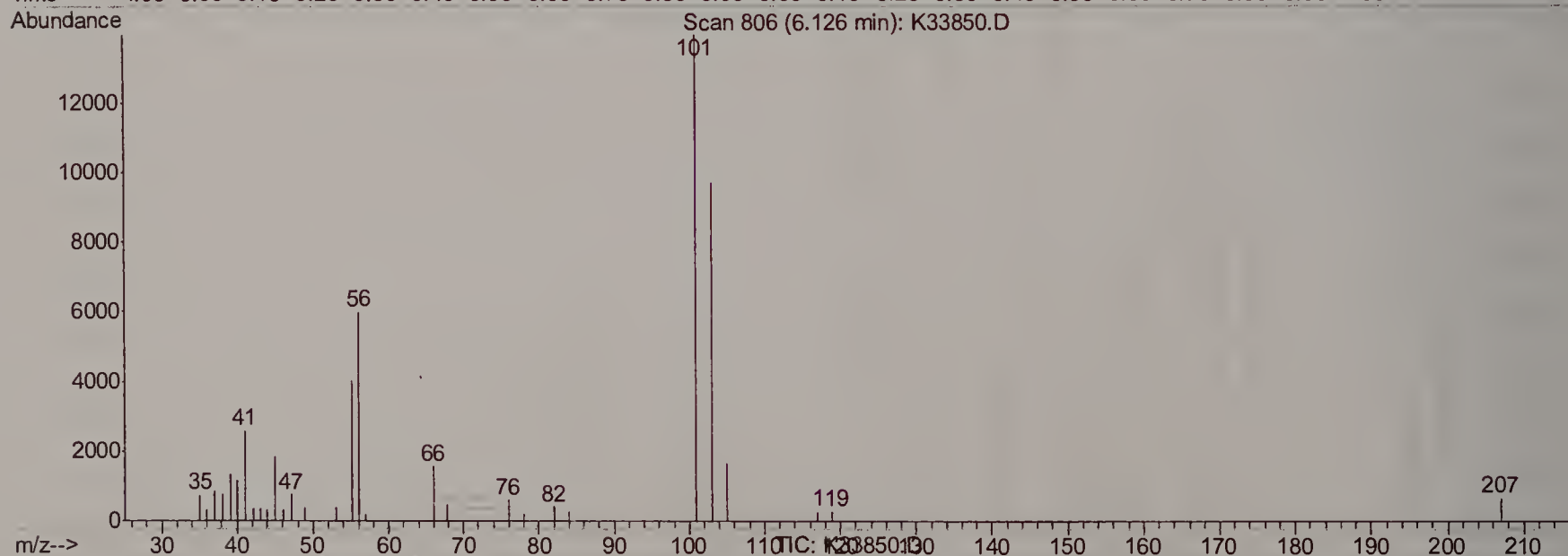
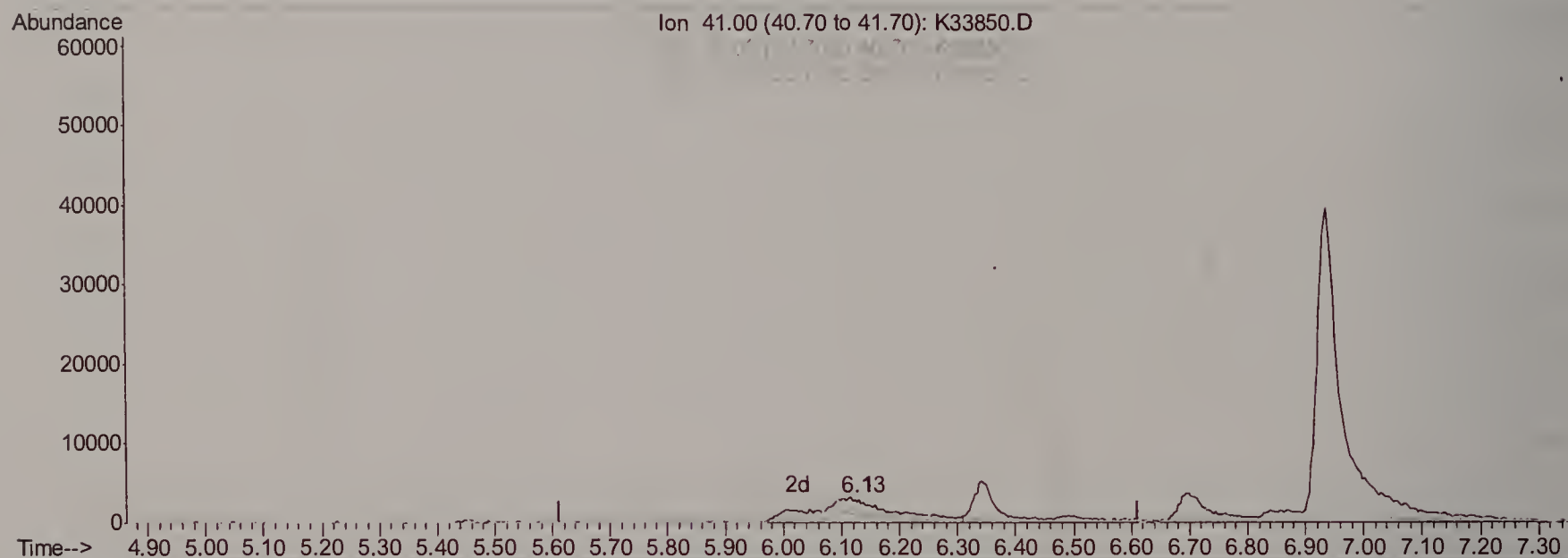
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33850.D
Acq On : 24 Apr 2009 4:34 pm
Sample : ic1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 9:10 2009

Vial: 9
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:09:09 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 48.80ug/kg m

response 30240

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	45.07
39.00	58.00	52.90
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33851.D
 Acq On : 24 Apr 2009 5:00 pm
 Sample : icv1192-50
 Misc : ms18077,msk1192,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 09:49:51 2009

Vial: 10
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	56962m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	220091	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	293048	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	116061	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	135102	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	107361	49.60	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	99.20%
62) toluene-d8 (s)	11.73	98	358685	51.93	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	103.86%
84) bromofluorobenzene (s)	14.42	95	118367	50.27	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	100.54%

Target Compounds

						Qvalue
2) tertiary butyl alcohol	6.72	59	72922	508.13	ug/kg	92
3) Ethanol	5.65	45	83472	4788.92	ug/kg#	100
5) dichlorodifluoromethane	4.35	85	62512	49.75	ug/kg	94
6) chloromethane	4.57	50	45641	45.28	ug/kg	98
7) vinyl chloride	4.83	62	34932	53.19	ug/kg	82
8) bromomethane	5.37	96	50536	50.28	ug/kg	90
9) chloroethane	5.50	64	45764	48.28	ug/kg	96
10) ethyl ether	6.35	59	79716	49.76	ug/kg	95
11) acetonitrile	6.13	41	31028m	49.47	ug/kg	
12) trichlorofluoromethane	6.18	101	135190m	50.96	ug/kg	
13) freon-113	6.95	101	73500	52.90	ug/kg	86
14) acrolein	6.11	56	83726	269.12	ug/kg	100
15) 1,1-dichloroethene	6.75	96	83242	49.49	ug/kg	90
16) acetone	6.25	43	28068	51.69	ug/kg	95
17) Methyl Acetate	6.90	43	137113	50.52	ug/kg#	95
18) methylene chloride	6.88	84	95110	47.49	ug/kg	86
19) methyl tert butyl ether	7.64	73	281540	49.01	ug/kg	99
20) acrylonitrile	6.76	53	184693	253.54	ug/kg	97
21) allyl chloride	6.97	41	122582	47.03	ug/kg	93
22) trans-1,2-dichloroethene	7.56	96	110680	48.68	ug/kg	90
23) iodomethane	6.81	142	162666	49.68	ug/kg	99
24) carbon disulfide	7.16	76	255848	48.95	ug/kg	97
25) propionitrile	7.85	54	12578	48.50	ug/kg	100
26) vinyl acetate	7.91	43	182100	51.54	ug/kg	99
27) chloroprene	8.17	53	148405	52.39	ug/kg	97
28) di-isopropyl ether	8.21	45	296588	49.33	ug/kg	96
29) methacrylonitrile	8.33	41	55955	50.41	ug/kg	94
30) 2-butanone	8.23	72	14294	49.54	ug/kg#	73
31) Hexane	8.19	41	122686	50.42	ug/kg	91
32) 1,1-dichloroethane	7.81	63	172580	50.05	ug/kg	98
33) tert-butyl ethyl ether	8.60	59	292003	50.79	ug/kg	98
34) isobutyl alcohol	8.63	43	44042	248.42	ug/kg	90
35) 2,2-dichloropropane	8.67	77	97770	49.53	ug/kg	100
36) cis-1,2-dichloroethene	8.37	96	116284	47.05	ug/kg	99
37) ethyl acetate	8.63	43	44042	50.42	ug/kg	80

(#)=qualifier out of range (m)=manual integration

K33851.D K042409S.M Mon Apr 27 09:51:09 2009 MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33851.D
Acq On : 24 Apr 2009 5:00 pm
Sample : icv1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 09:49:51 2009

Vial: 10
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	64197	48.36	ug/kg	94
39) chloroform	8.58	83	181091	48.76	ug/kg	99
41) Tetrahydrofuran	8.91	42	26356	47.50	ug/kg	92
42) 1,1,1-trichloroethane	9.35	97	144030	51.54	ug/kg	94
43) n-Butyl Alcohol	9.34	TIC	365648	243.06	ug/L #	100
45) Cyclohexane	9.62	56	106902m	51.44	ug/kg	
46) carbon tetrachloride	9.71	117	136130	53.12	ug/kg	99
47) 1,1-dichloropropene	9.51	75	133631	51.30	ug/kg	98
48) benzene	9.73	78	399051	49.57	ug/kg	100
49) 1,2-dichloroethane	9.23	62	123401	49.68	ug/kg	94
50) tert-amyl methyl ether	9.85	73	279582	52.08	ug/kg	100
51) heptane	10.21	43	111505	51.35	ug/kg	96
52) 2-Nitropropane	10.33	TIC	1397531	51.38	ug/L #	100
53) trichloroethene	10.35	95	111593	50.49	ug/kg	98
54) 1,2-dichloropropane	10.32	63	95463	50.20	ug/kg	99
55) dibromomethane	10.29	93	60585	49.79	ug/kg	93
56) bromodichloromethane	10.41	83	129242	50.22	ug/kg	96
57) Methylcyclohexane	10.88	83	119753	53.22	ug/kg	97
58) 2-chloroethyl vinyl ether	10.78	63	3364	50.22	ug/kg#	100
59) methyl methacrylate	10.50	69	65721	53.20	ug/kg	96
60) 1,4-dioxane	10.52	88	3878	207.10	ug/kg#	100
61) cis-1,3-dichloropropene	11.02	75	149213	51.51	ug/kg	97
63) 4-methyl-2-pentanone	11.12	43	79295	50.51	ug/kg	99
64) toluene	11.80	92	239458	50.94	ug/kg	100
65) trans-1,3-dichloropropene	11.44	75	121631	50.44	ug/kg	98
66) 1,1,2-trichloroethane	11.62	83	72926	50.52	ug/kg	96
67) ethyl methacrylate	11.82	69	108741	56.00	ug/kg	92
69) tetrachloroethene	12.55	166	117432	49.85	ug/kg	98
70) 1,3-dichloropropane	11.85	76	137412	49.14	ug/kg	96
71) dibromochloromethane	12.15	129	102539	49.74	ug/kg	99
72) 1,2-dibromoethane	12.40	107	92804	48.99	ug/kg	98
73) 2-hexanone	11.98	43	57843	51.43	ug/kg	97
74) chlorobenzene	13.23	112	267161	48.26	ug/kg	99
75) 1,1,1,2-tetrachloroethane	13.14	131	104280	49.70	ug/kg	96
76) ethylbenzene	13.40	91	420034	50.47	ug/kg	100
77) m,p-xylene	13.59	106	346977	103.42	ug/kg	100
78) o-xylene	14.00	106	167641	50.89	ug/kg	100
79) styrene	13.93	104	261927	52.58	ug/kg	100
80) bromoform	13.75	173	66246	49.46	ug/kg	99
81) trans-1,4-dichloro-2-buten	14.15	53	24736	48.15	ug/kg#	88
83) isopropylbenzene	14.36	105	347521	52.59	ug/kg	100
85) bromobenzene	14.65	156	123521	50.78	ug/kg	99
86) 1,1,2,2-tetrachloroethane	14.00	83	101521	50.46	ug/kg	98
87) 1,2,3-trichloropropane	14.15	75	111701	50.22	ug/kg	97
88) n-propylbenzene	14.81	91	431648	52.11	ug/kg	99
89) 2-chlorotoluene	14.93	91	279312	51.04	ug/kg	99
90) 4-chlorotoluene	15.00	91	279847	51.70	ug/kg	99
91) 1,3,5-trimethylbenzene	15.08	105	327974	52.37	ug/kg	99
92) tert-butylbenzene	15.39	91	173563	52.03	ug/kg	98

(#)=qualifier out of range (m)=manual integration

K33851.D K042409S.M

Mon Apr 27 09:51:10 2009

MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33851.D
Acq On : 24 Apr 2009 5:00 pm
Sample : icv1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 09:49:51 2009

Vial: 10
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	341520	53.22	ug/kg	99
94) sec-butylbenzene	15.61	105	406833	51.81	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	228216	50.22	ug/kg	97
96) p-isopropyltoluene	15.78	119	358704	50.88	ug/kg	98
97) 1,4-dichlorobenzene	15.78	146	235272	49.38	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	232003	50.82	ug/kg	97
99) n-butylbenzene	16.20	91	308267	52.50	ug/kg	100
100) 1,2-dibromo-3-chloropropan	16.63	75	14404	48.71	ug/kg	95
101) 1,2,4-trichlorobenzene	18.03	180	120612	52.53	ug/kg	97
102) hexachlorobutadiene	18.34	225	69690	54.31	ug/kg	96
103) naphthalene	18.32	128	257635	49.61	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	88413	49.91	ug/kg	100

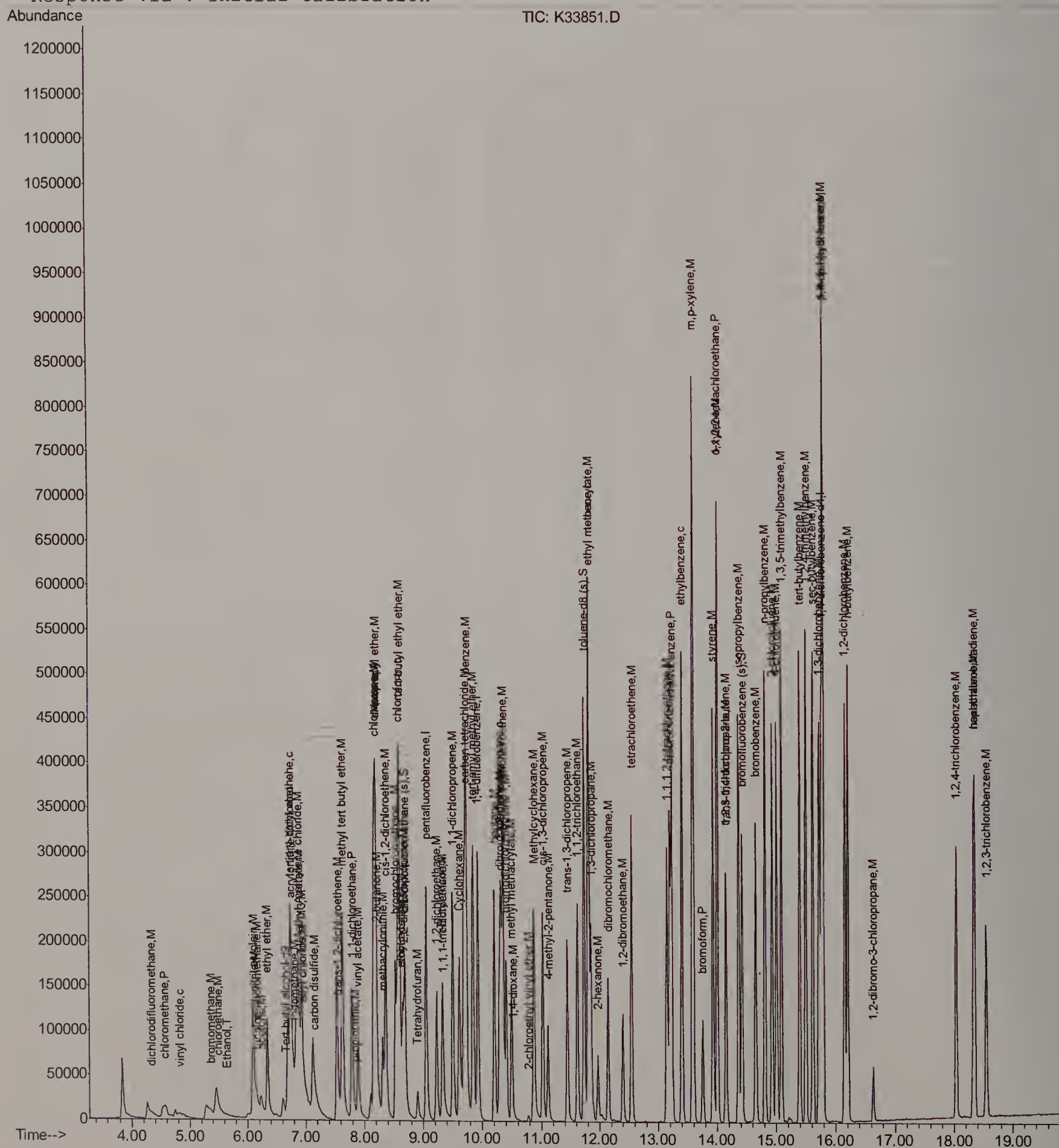
(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33851.D K042409S.M Mon Apr 27 09:51:10 2009 MSK

(QT Reviewed)

Vial: 10
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

```
Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Mon Apr 27 09:11:43 2009
Response via  : Initial Calibration
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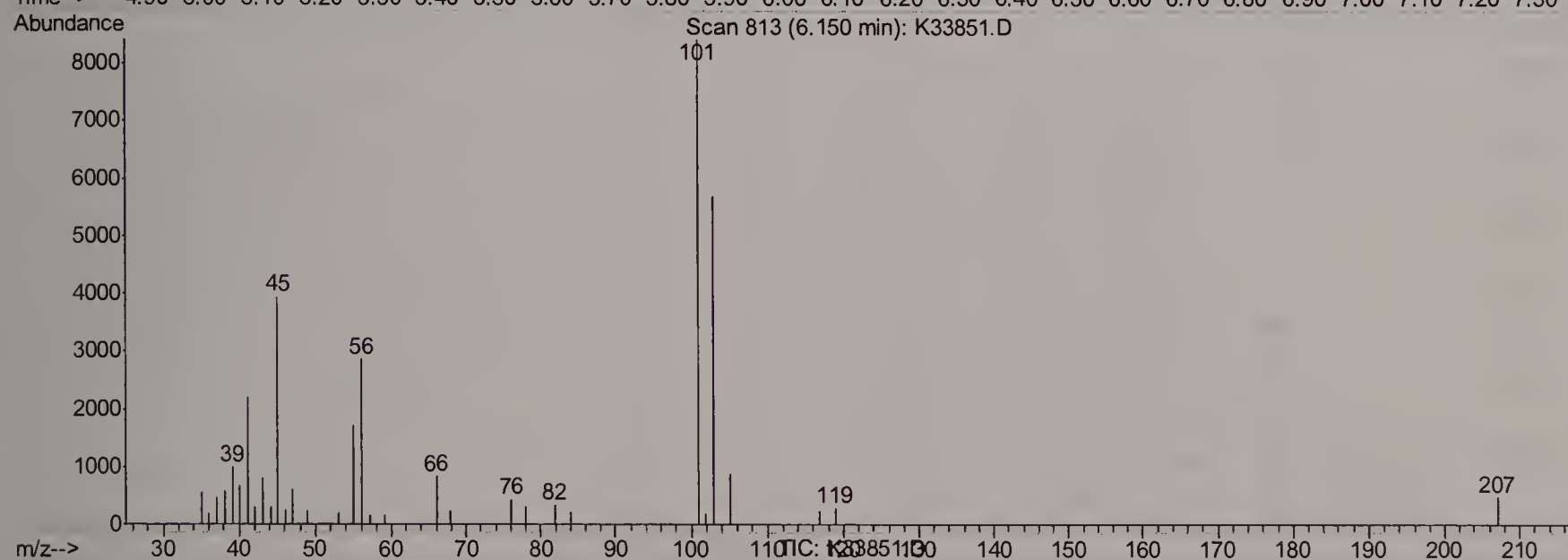
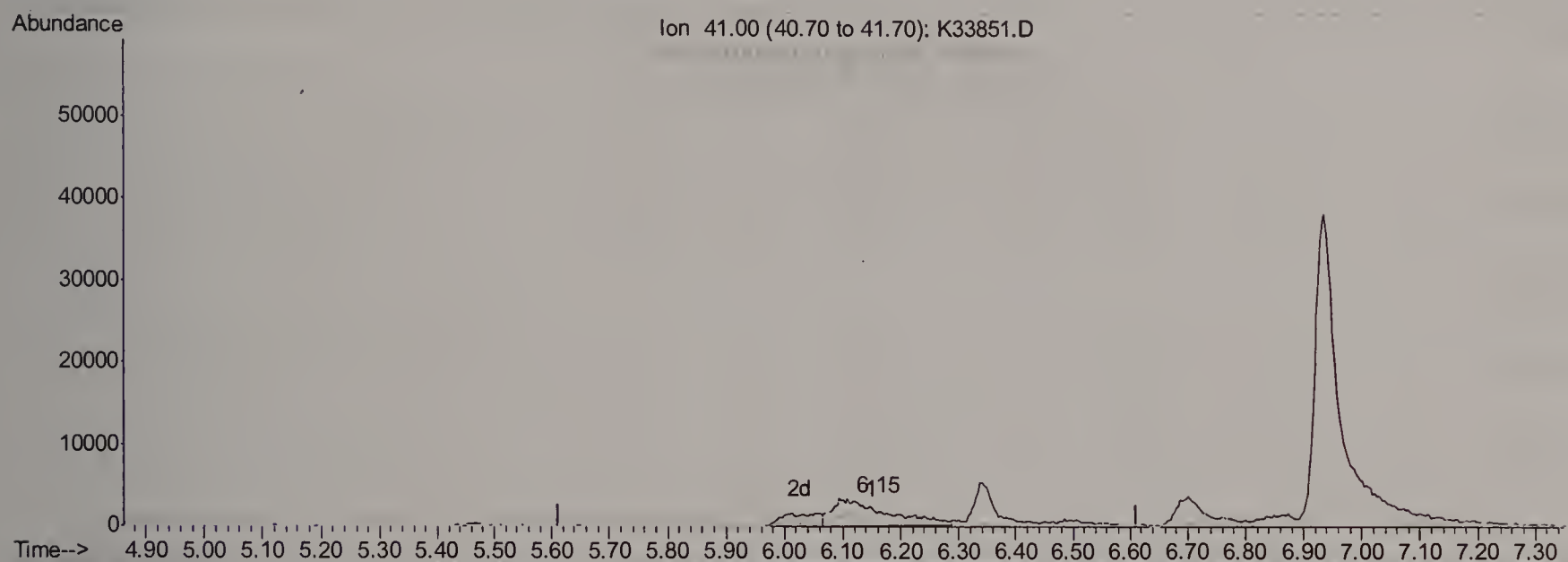
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33851.D
Acq On : 24 Apr 2009 5:00 pm
Sample : icv1192-50
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 9:49 2009

Vial: 10
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.15min 34.26ug/kg

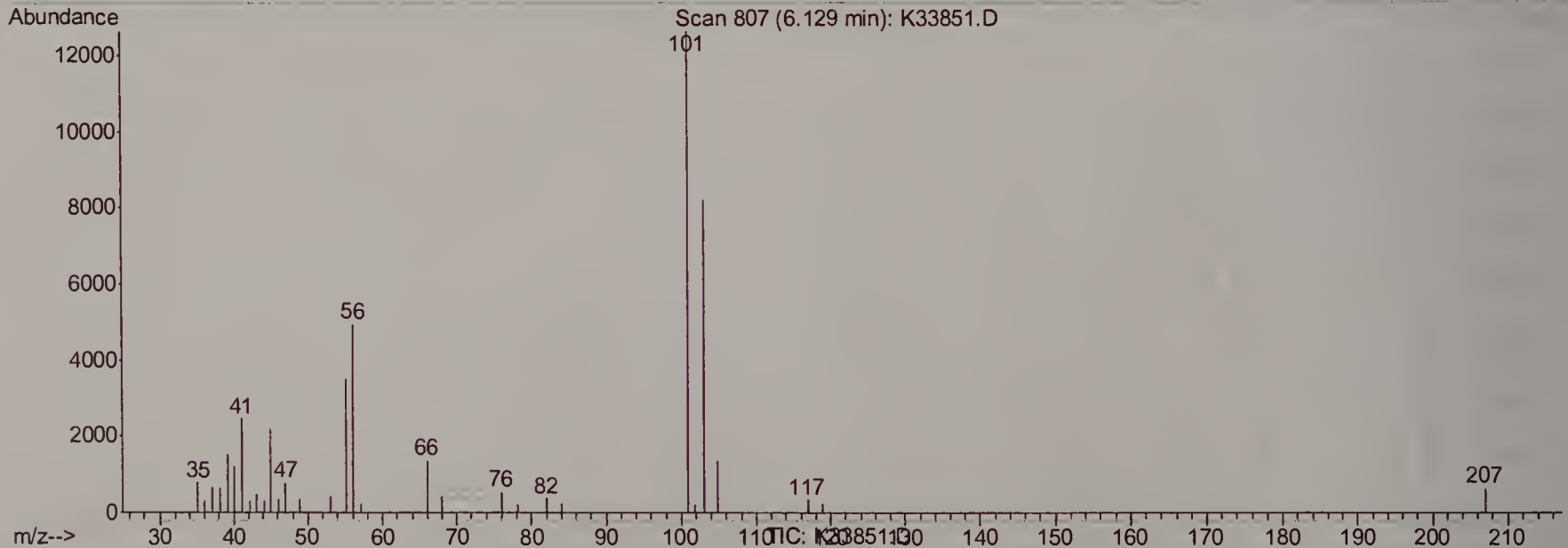
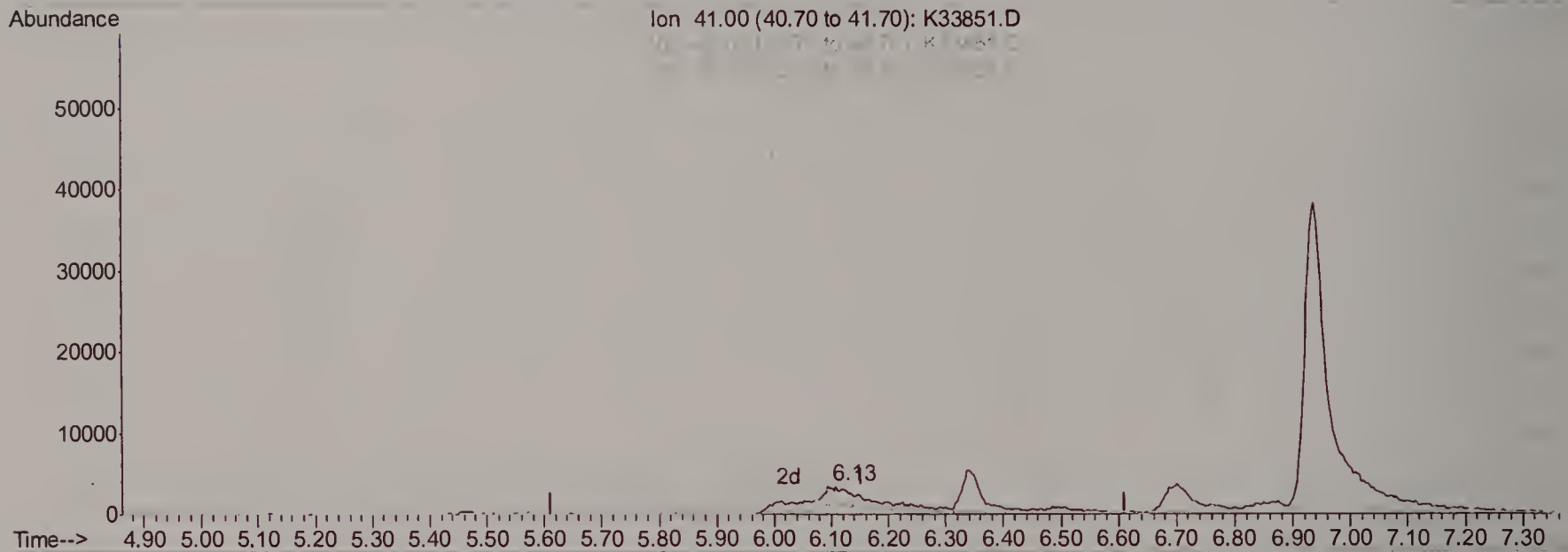
response 21707

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	28.07
39.00	58.00	40.49
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33851.D Vial: 10
 Acq On : 24 Apr 2009 5:00 pm Operator: RobertT
 Sample : icv1192-50 Inst : gcms k
 Misc : ms18077,msk1192,10,,100,10,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 9:50 2009 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 49.47ug/kg m

response 31028

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	50.00
39.00	58.00	62.60
0.00	0.00	0.00

Doug Yargeau
04/27/09 13:55

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33853.D
Acq On : 24 Apr 2009 5:51 pm
Sample : cc1192-100
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 10:02:46 2009Vial: 12
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.66	65	53907m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	214281	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	286769	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	119266	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	137402	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	206238	97.86	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	195.72%#
62) toluene-d8 (s)	11.73	98	676393	100.07	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	200.14%#
84) bromofluorobenzene (s)	14.42	95	231656	96.75	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	193.50%#

Target Compounds

					Qvalue
2) tertiary butyl alcohol	6.73	59	135732	999.39	ug/kg 91
3) Ethanol	5.65	45	160895	9753.92	ug/kg# 100
5) dichlorodifluoromethane	4.35	85	117841	96.33	ug/kg 92
6) chloromethane	4.56	50	85596	87.21	ug/kg 95
7) vinyl chloride	4.84	62	66884	104.61	ug/kg 86
8) bromomethane	5.37	96	94289	98.11	ug/kg 99
9) chloroethane	5.52	64	94477	102.38	ug/kg 96
10) ethyl ether	6.35	59	156457	100.31	ug/kg 97
11) acetonitrile	6.13	41	57247m	94.78	ug/kg
12) trichlorofluoromethane	6.18	101	257180m	99.57	ug/kg
13) freon-113	6.97	101	139785m	103.34	ug/kg
14) acrolein	6.11	56	162015	534.89	ug/kg 100
15) 1,1-dichloroethene	6.74	96	151337m	92.42	ug/kg
16) acetone	6.25	43	45873m	86.77	ug/kg
17) Methyl Acetate	6.89	43	260254	98.48	ug/kg 99
18) methylene chloride	6.88	84	184434	94.59	ug/kg 97
19) methyl tert butyl ether	7.64	73	553013	98.88	ug/kg 98
20) acrylonitrile	6.76	53	349995	493.50	ug/kg 98
21) allyl chloride	6.97	41	248944	98.10	ug/kg 97
22) trans-1,2-dichloroethene	7.56	96	213482	96.44	ug/kg 95
23) iodomethane	6.80	142	310889m	97.53	ug/kg
24) carbon disulfide	7.16	76	495552m	97.38	ug/kg
25) propionitrile	7.85	54	25836	100.73	ug/kg 100
26) vinyl acetate	7.90	43	359913	104.64	ug/kg 100
27) chloroprene	8.17	53	289187	104.86	ug/kg 99
28) di-isopropyl ether	8.21	45	563557	96.27	ug/kg 98
29) methacrylonitrile	8.33	41	108526	100.42	ug/kg 94
30) 2-butanone	8.22	72	23549	86.26	ug/kg# 46
31) Hexane	8.19	41	230305	97.21	ug/kg 92
32) 1,1-dichloroethane	7.80	63	330139	98.35	ug/kg 97
33) tert-butyl ethyl ether	8.60	59	563322	100.64	ug/kg 98
34) isobutyl alcohol	8.63	43	82544	478.22	ug/kg 89
35) 2,2-dichloropropane	8.67	77	184956	96.24	ug/kg 96
36) cis-1,2-dichloroethene	8.37	96	225646	93.78	ug/kg 96
37) ethyl acetate	8.63	43	80081	94.17	ug/kg 86

(#) = qualifier out of range (m) = manual integration

K33853.D K042409S.M

Mon Apr 27 10:04:08 2009

MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33853.D
Acq On : 24 Apr 2009 5:51 pm
Sample : cc1192-100
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 10:02:46 2009

Vial: 12
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	126580	97.94	ug/kg	98
39) chloroform	8.58	83	349962	96.79	ug/kg	96
41) Tetrahydrofuran	8.92	42	52080	96.40	ug/kg	97
42) 1,1,1-trichloroethane	9.35	97	279671	102.80	ug/kg	98
43) n-Butyl Alcohol	9.34	TIC	710326	484.98	ug/L #	100
45) Cyclohexane	9.62	56	198165m	97.45	ug/kg	
46) carbon tetrachloride	9.71	117	262082	104.50	ug/kg	98
47) 1,1-dichloropropene	9.51	75	257178	100.89	ug/kg	97
48) benzene	9.73	78	746369	94.75	ug/kg	99
49) 1,2-dichloroethane	9.23	62	240314	98.86	ug/kg	95
50) tert-amyl methyl ether	9.85	73	535022	101.85	ug/kg	100
51) heptane	10.21	43	206378	97.13	ug/kg	97
52) 2-Nitropropane	10.33	TIC	2682389	104.29	ug/L #	100
53) trichloroethene	10.35	95	212437	98.22	ug/kg	99
54) 1,2-dichloropropane	10.32	63	182432	98.03	ug/kg	100
55) dibromomethane	10.29	93	119969	100.75	ug/kg	96
56) bromodichloromethane	10.41	83	254821	101.18	ug/kg	96
57) Methylcyclohexane	10.88	83	222083	100.86	ug/kg	100
58) 2-chloroethyl vinyl ether	10.78	63	6778	96.57	ug/kg#	100
59) methyl methacrylate	10.50	69	132792	109.85	ug/kg	98
60) 1,4-dioxane	10.54	88	8908	473.40	ug/kg#	100
61) cis-1,3-dichloropropene	11.02	75	291081	102.69	ug/kg	97
63) 4-methyl-2-pentanone	11.12	43	156100	101.62	ug/kg	99
64) toluene	11.80	92	453416	98.56	ug/kg	98
65) trans-1,3-dichloropropene	11.44	75	243874	103.35	ug/kg	98
66) 1,1,2-trichloroethane	11.62	83	142772	101.08	ug/kg	95
67) ethyl methacrylate	11.82	69	209435	110.22	ug/kg	89
69) tetrachloroethene	12.55	166	225596	93.19	ug/kg	99
70) 1,3-dichloropropane	11.85	76	264373	92.00	ug/kg	97
71) dibromochloromethane	12.15	129	212727	100.42	ug/kg	99
72) 1,2-dibromoethane	12.40	107	185564	95.33	ug/kg	100
73) 2-hexanone	11.98	43	106264	91.94	ug/kg	96
74) chlorobenzene	13.23	112	522624	91.88	ug/kg	98
75) 1,1,1,2-tetrachloroethane	13.14	131	207391	96.18	ug/kg	97
76) ethylbenzene	13.40	91	810524	94.77	ug/kg	99
77) m,p-xylene	13.59	106	659463	191.29	ug/kg	97
78) o-xylene	14.00	106	321759	95.05	ug/kg	100
79) styrene	13.93	104	523933	102.35	ug/kg	99
80) bromoform	13.75	173	141081	102.51	ug/kg	99
81) trans-1,4-dichloro-2-buten	14.15	53	52026	98.55	ug/kg	98
83) isopropylbenzene	14.36	105	675648	100.54	ug/kg	99
85) bromobenzene	14.65	156	244611	98.87	ug/kg	98
86) 1,1,2,2-tetrachloroethane	14.00	83	198872	97.19	ug/kg	95
87) 1,2,3-trichloropropane	14.15	75	226217	100.00	ug/kg	98
88) n-propylbenzene	14.81	91	838806	99.56	ug/kg	98
89) 2-chlorotoluene	14.93	91	541143	97.24	ug/kg	100
90) 4-chlorotoluene	15.00	91	551628	100.20	ug/kg	99
91) 1,3,5-trimethylbenzene	15.08	105	639302	100.37	ug/kg	99
92) tert-butylbenzene	15.39	91	334768	98.67	ug/kg	99

(#)=qualifier out of range (m)=manual integration

K33853.D K042409S.M

Mon Apr 27 10:04:08 2009

MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33853.D
Acq On : 24 Apr 2009 5:51 pm
Sample : cc1192-100
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 10:02:46 2009

Vial: 12
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

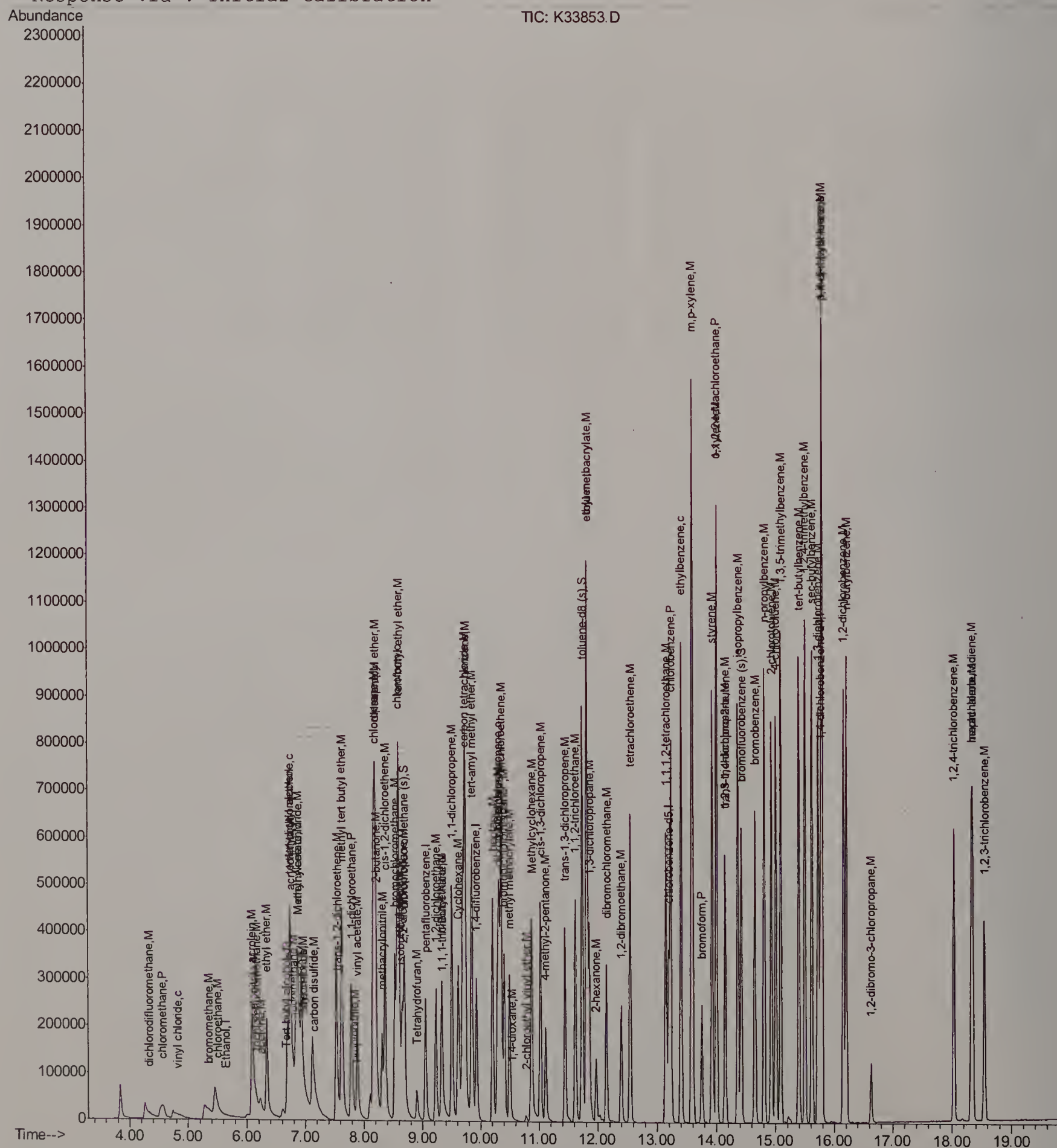
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	659186	101.01	ug/kg	100
94) sec-butylbenzene	15.61	105	774211	96.95	ug/kg	99
95) 1,3-dichlorobenzene	15.72	146	448053	96.94	ug/kg	99
96) p-isopropyltoluene	15.78	119	691357	96.42	ug/kg	99
97) 1,4-dichlorobenzene	15.78	146	458261	94.56	ug/kg	98
98) 1,2-dichlorobenzene	16.15	146	455663	98.13	ug/kg	99
99) n-butylbenzene	16.20	91	601044	100.65	ug/kg	98
100) 1,2-dibromo-3-chloropropan	16.63	75	29783	99.03	ug/kg	93
101) 1,2,4-trichlorobenzene	18.03	180	243395	104.22	ug/kg	98
102) hexachlorobutadiene	18.34	225	127230	100.48	ug/kg	97
103) naphthalene	18.32	128	511432	96.83	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	171296	95.09	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33853.D K042409S.M Mon Apr 27 10:04:08 2009 MSK

Quantitation Report (QT Reviewed)

Quant Results File: K042409S.RES

```
Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Mon Apr 27 09:11:43 2009
Response via  : Initial Calibration
```



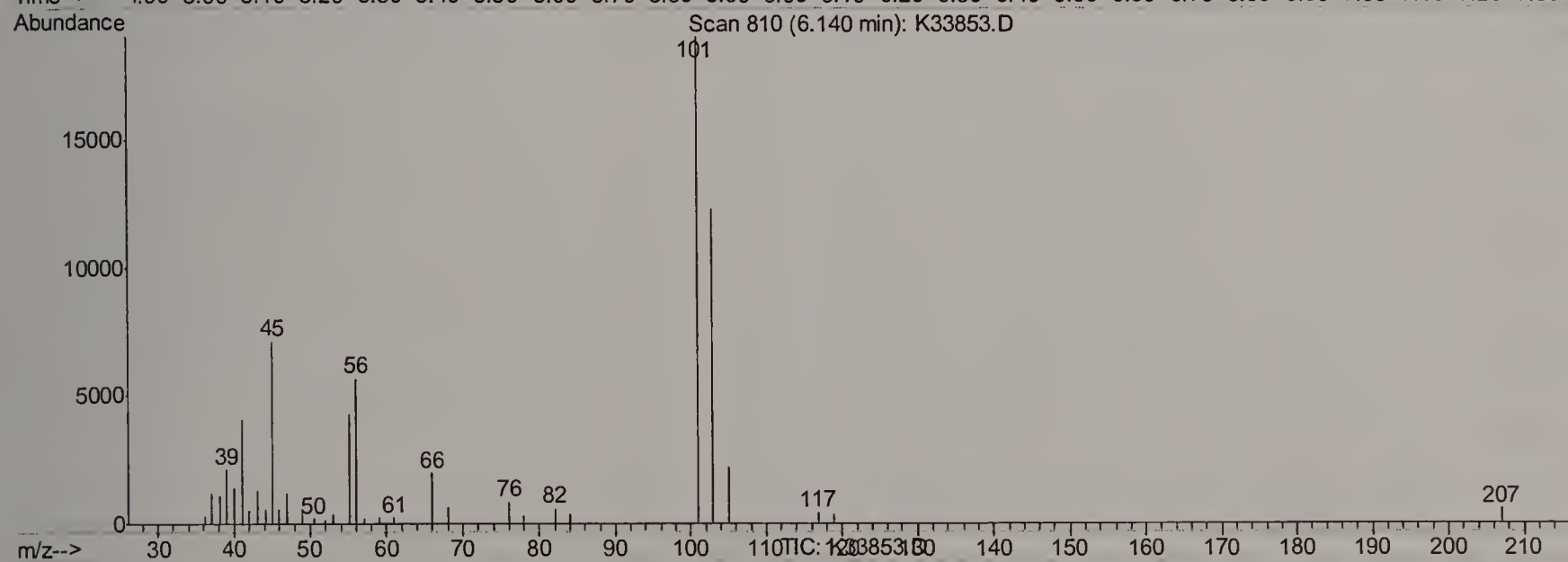
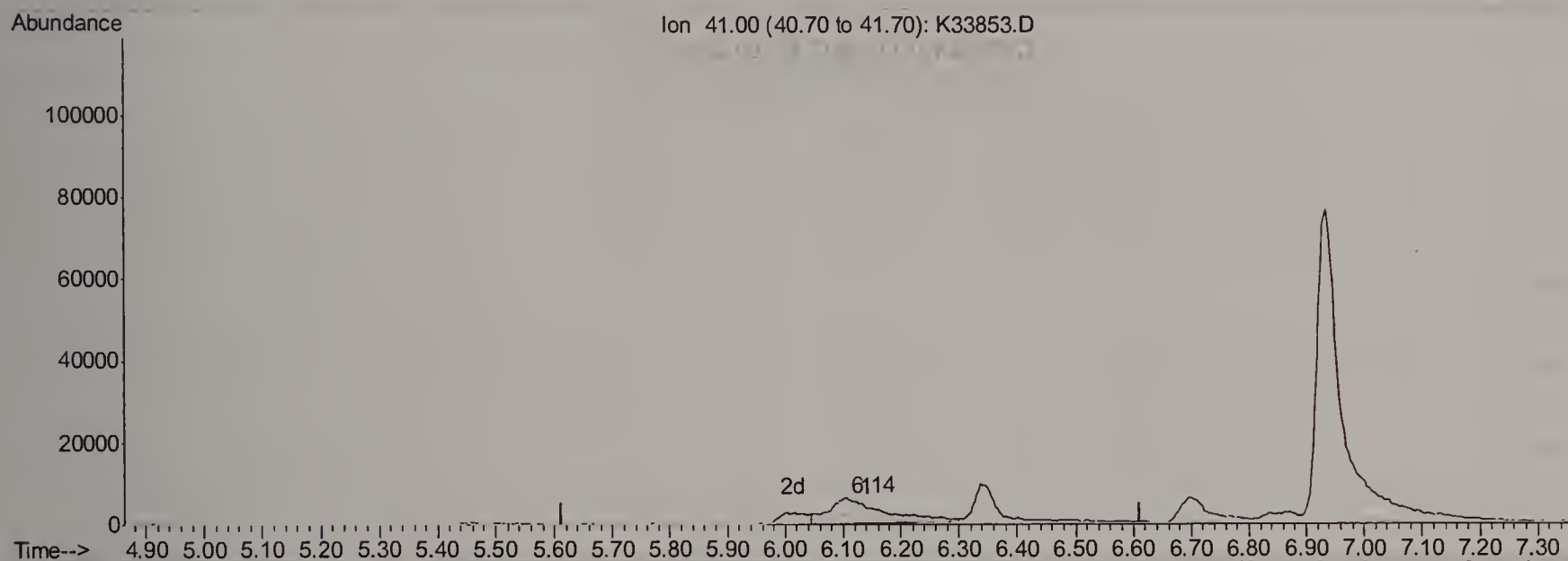
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33853.D
Acq On : 24 Apr 2009 5:51 pm
Sample : cc1192-100
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 10:02 2009

Vial: 12
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.14min 68.31ug/kg

response 41451

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	37.01
39.00	58.00	47.16
0.00	0.00	0.00

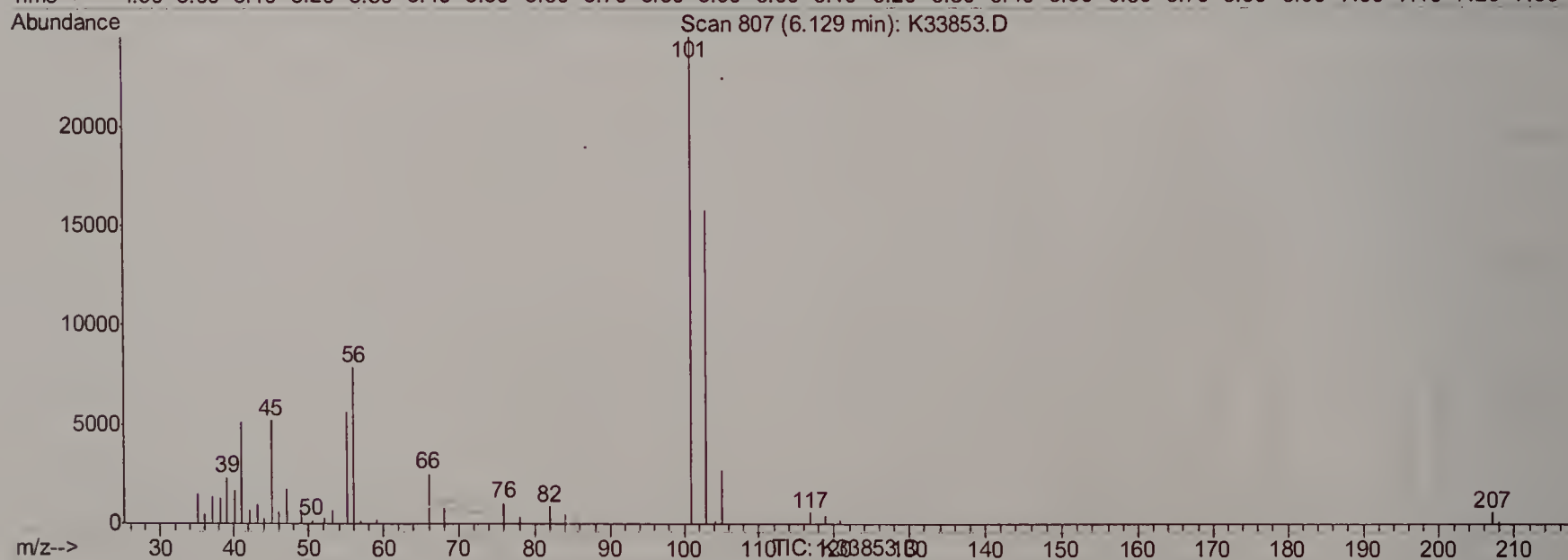
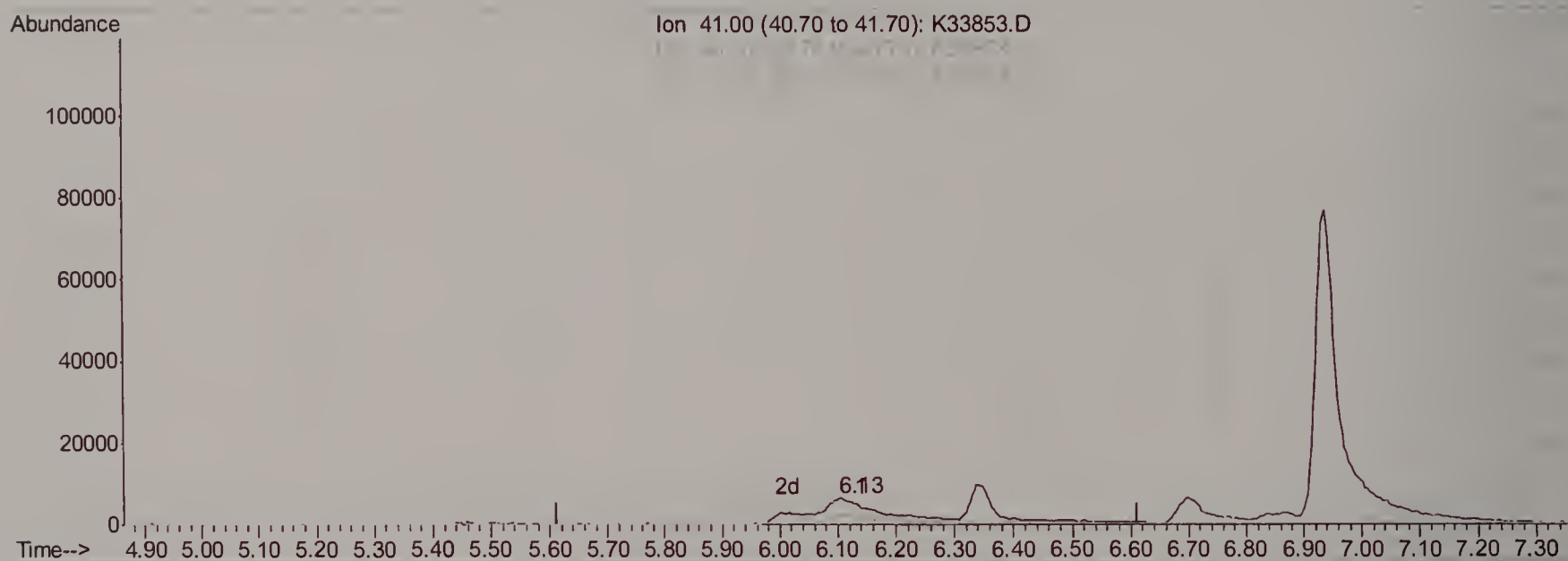
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33853.D
Acq On : 24 Apr 2009 5:51 pm
Sample : ccl192-100
Misc : ms18077,msk1192,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 10:03 2009

Vial: 12
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 94.78ug/kg m

response 57247

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	32.99
39.00	58.00	44.90
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33886.D
 Acq On : 27 Apr 2009 9:54 am
 Sample : cc1192-100
 Misc : ms18104,msk1193,10,,100,10,1
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 12:31:14 2009

Vial: 1
 Operator: RobertT
 Inst : gcms k
 Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Initial Calibration
 DataAcq Meth : K8260

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert butyl alcohol-d9	6.67	65	42969m	500.00	ug/kg	0.00
4) pentafluorobenzene	9.06	168	207175	50.00	ug/kg	0.00
44) 1,4-difluorobenzene	9.93	114	277995	50.00	ug/kg	0.00
68) chlorobenzene-d5	13.19	82	118333	50.00	ug/kg	0.00
82) 1,4-dichlorobenzene-d4	15.76	152	141290	50.00	ug/kg	0.00

System Monitoring Compounds

40) dibromofluoromethane (s)	8.70	113	196216	96.30	ug/kg	0.00
Spiked Amount	50.000	Range	85 - 129	Recovery	=	192.60%#
62) toluene-d8 (s)	11.73	98	653013	99.66	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	199.32%#
84) bromofluorobenzene (s)	14.42	95	232266	94.33	ug/kg	0.00
Spiked Amount	50.000	Range	80 - 119	Recovery	=	188.66%#

Target Compounds

						Qvalue
2) tertiary butyl alcohol	6.73	59	106114	980.20	ug/kg	92
3) Ethanol	5.65	45	129129	9820.88	ug/kg#	100
5) dichlorodifluoromethane	4.35	85	99230	83.90	ug/kg	96
6) chloromethane	4.57	50	87415	92.12	ug/kg	97
7) vinyl chloride	4.84	62	70130	113.45	ug/kg	96
8) bromomethane	5.37	96	90437	97.32	ug/kg	88
9) chloroethane	5.52	64	91350	102.39	ug/kg	91
10) ethyl ether	6.36	59	143876	95.41	ug/kg	99
11) acetonitrile	6.13	41	55553m	95.13	ug/kg	
12) trichlorofluoromethane	6.18	101	247463m	99.10	ug/kg	
13) freon-113	6.97	101	136650m	104.49	ug/kg	
14) acrolein	6.11	56	90958	310.60	ug/kg	100
15) 1,1-dichloroethene	6.76	96	156563m	98.89	ug/kg	
16) acetone	6.25	43	55391	108.36	ug/kg	98
17) Methyl Acetate	6.89	43	226604	88.69	ug/kg	99
18) methylene chloride	6.88	84	180822	95.92	ug/kg	95
19) methyl tert butyl ether	7.64	73	504801	93.35	ug/kg	100
20) acrylonitrile	6.77	53	309174	450.89	ug/kg	95
21) allyl chloride	6.98	41	234301	95.49	ug/kg	99
22) trans-1,2-dichloroethene	7.56	96	199130	93.04	ug/kg	92
23) iodomethane	6.80	142	307227m	99.68	ug/kg	
24) carbon disulfide	7.17	76	481856	97.93	ug/kg	99
25) propionitrile	7.85	54	21377	86.41	ug/kg	100
26) vinyl acetate	7.91	43	318918	95.90	ug/kg	98
27) chloroprene	8.17	53	266844	100.08	ug/kg	100
28) di-isopropyl ether	8.21	45	523150	92.43	ug/kg	94
29) methacrylonitrile	8.33	41	97184	93.01	ug/kg	99
30) 2-butanone	8.23	72	26963	103.20	ug/kg#	79
31) Hexane	8.19	41	206450	90.13	ug/kg	91
32) 1,1-dichloroethane	7.81	63	308998	95.21	ug/kg	98
33) tert-butyl ethyl ether	8.60	59	525605	97.12	ug/kg	97
34) isobutyl alcohol	8.63	43	69028	413.64	ug/kg	98
35) 2,2-dichloropropane	8.68	77	179293	96.49	ug/kg	97
36) cis-1,2-dichloroethene	8.38	96	212442	91.32	ug/kg	96
37) ethyl acetate	8.63	43	72009	87.58	ug/kg	89

(#)=qualifier out of range (m)=manual integration

K33886.D K042409S.M Mon Apr 27 12:32:36 2009 MSK

Page 1

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33886.D
Acq On : 27 Apr 2009 9:54 am
Sample : cc1192-100
Misc : ms18104,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:31:14 2009

Vial: 1
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38) bromochloromethane	8.54	128	118707	95.00	ug/kg	97
39) chloroform	8.58	83	325721	93.18	ug/kg	95
41) Tetrahydrofuran	8.92	42	43990	84.22	ug/kg	93
42) 1,1,1-trichloroethane	9.35	97	264736	100.65	ug/kg	95
43) n-Butyl Alcohol	9.34	TIC	699201	493.76	ug/L #	100
45) Cyclohexane	9.62	56	184847	93.77	ug/kg	98
46) carbon tetrachloride	9.71	117	244453	100.55	ug/kg	100
47) 1,1-dichloropropene	9.51	75	240641	97.38	ug/kg	97
48) benzene	9.74	78	695118	91.03	ug/kg	99
49) 1,2-dichloroethane	9.23	62	225119	95.53	ug/kg	94
50) tert-amyl methyl ether	9.85	73	493917	97.00	ug/kg	98
51) heptane	10.21	43	193418	93.90	ug/kg	99
52) 2-Nitropropane	10.33	TIC	2547332m	102.09	ug/L	
53) trichloroethene	10.36	95	202946	96.79	ug/kg	99
54) 1,2-dichloropropane	10.32	63	171534	95.08	ug/kg	100
55) dibromomethane	10.30	93	112083	97.10	ug/kg	97
56) bromodichloromethane	10.41	83	238768	97.80	ug/kg	95
57) Methylcyclohexane	10.88	83	209292	98.05	ug/kg	99
58) 2-chloroethyl vinyl ether	10.78	63	5894	87.29	ug/kg#	100
59) methyl methacrylate	10.50	69	116806	99.68	ug/kg	96
60) 1,4-dioxane	10.54	88	7489	411.80	ug/kg#	100
61) cis-1,3-dichloropropene	11.03	75	277692	101.05	ug/kg	96
63) 4-methyl-2-pentanone	11.12	43	142077	95.41	ug/kg	99
64) toluene	11.81	92	433483	97.20	ug/kg	99
65) trans-1,3-dichloropropene	11.45	75	234238	102.40	ug/kg	97
66) 1,1,2-trichloroethane	11.62	83	131592	96.11	ug/kg	97
67) ethyl methacrylate	11.82	69	188354	102.25	ug/kg	91
69) tetrachloroethene	12.55	166	214278	89.21	ug/kg	96
70) 1,3-dichloropropane	11.85	76	246062	86.30	ug/kg	96
71) dibromochloromethane	12.15	129	200779	95.53	ug/kg	97
72) 1,2-dibromoethane	12.40	107	176297	91.28	ug/kg	97
73) 2-hexanone	11.98	43	140982	122.93	ug/kg	96
74) chlorobenzene	13.23	112	511955	90.71	ug/kg	97
75) 1,1,1,2-tetrachloroethane	13.15	131	195206	91.25	ug/kg	98
76) ethylbenzene	13.40	91	778370	91.72	ug/kg	100
77) m,p-xylene	13.59	106	637451	186.36	ug/kg	99
78) o-xylene	14.00	106	308811	91.95	ug/kg	98
79) styrene	13.93	104	515203	101.44	ug/kg	99
80) bromoform	13.75	173	132699	97.18	ug/kg	99
81) trans-1,4-dichloro-2-buten	14.15	53	49154	93.84	ug/kg	95
83) isopropylbenzene	14.36	105	662942	95.93	ug/kg	99
85) bromobenzene	14.65	156	237984	93.55	ug/kg	98
86) 1,1,2,2-tetrachloroethane	14.00	83	184625	87.74	ug/kg	95
87) 1,2,3-trichloropropane	14.15	75	213240	91.67	ug/kg	99
88) n-propylbenzene	14.81	91	818780	94.51	ug/kg	100
89) 2-chlorotoluene	14.93	91	524663	91.68	ug/kg	100
90) 4-chlorotoluene	15.00	91	538083	95.05	ug/kg	99
91) 1,3,5-trimethylbenzene	15.08	105	629299	96.08	ug/kg	99
92) tert-butylbenzene	15.39	91	324958	93.14	ug/kg	94

(#)=qualifier out of range (m)=manual integration

K33886.D K042409S.M

Mon Apr 27 12:32:37 2009

MSK

Page 2

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\K33886.D Vial: 1
Acq On : 27 Apr 2009 9:54 am Operator: RobertT
Sample : cc1192-100 Inst : gcms k
Misc : ms18104,msk1193,10,,100,10,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:31:14 2009 Quant Results File: K042409S.RES

Quant Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Initial Calibration
DataAcq Meth : K8260

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
93) 1,2,4-trimethylbenzene	15.49	105	655567	97.69	ug/kg	99
94) sec-butylbenzene	15.61	105	767988	93.52	ug/kg	100
95) 1,3-dichlorobenzene	15.72	146	445090	93.65	ug/kg	100
96) p-isopropyltoluene	15.78	119	685047	92.91	ug/kg	99
97) 1,4-dichlorobenzene	15.78	146	448080	89.92	ug/kg	99
98) 1,2-dichlorobenzene	16.15	146	446805	93.58	ug/kg	99
99) n-butylbenzene	16.20	91	588417	95.82	ug/kg	100
100) 1,2-dibromo-3-chloropropan	16.63	75	26192	84.70	ug/kg	91
101) 1,2,4-trichlorobenzene	18.03	180	237024	98.70	ug/kg	99
102) hexachlorobutadiene	18.34	225	127661	97.95	ug/kg	95
103) naphthalene	18.32	128	472309	86.97	ug/kg	100
104) 1,2,3-trichlorobenzene	18.55	180	153407	82.82	ug/kg	99

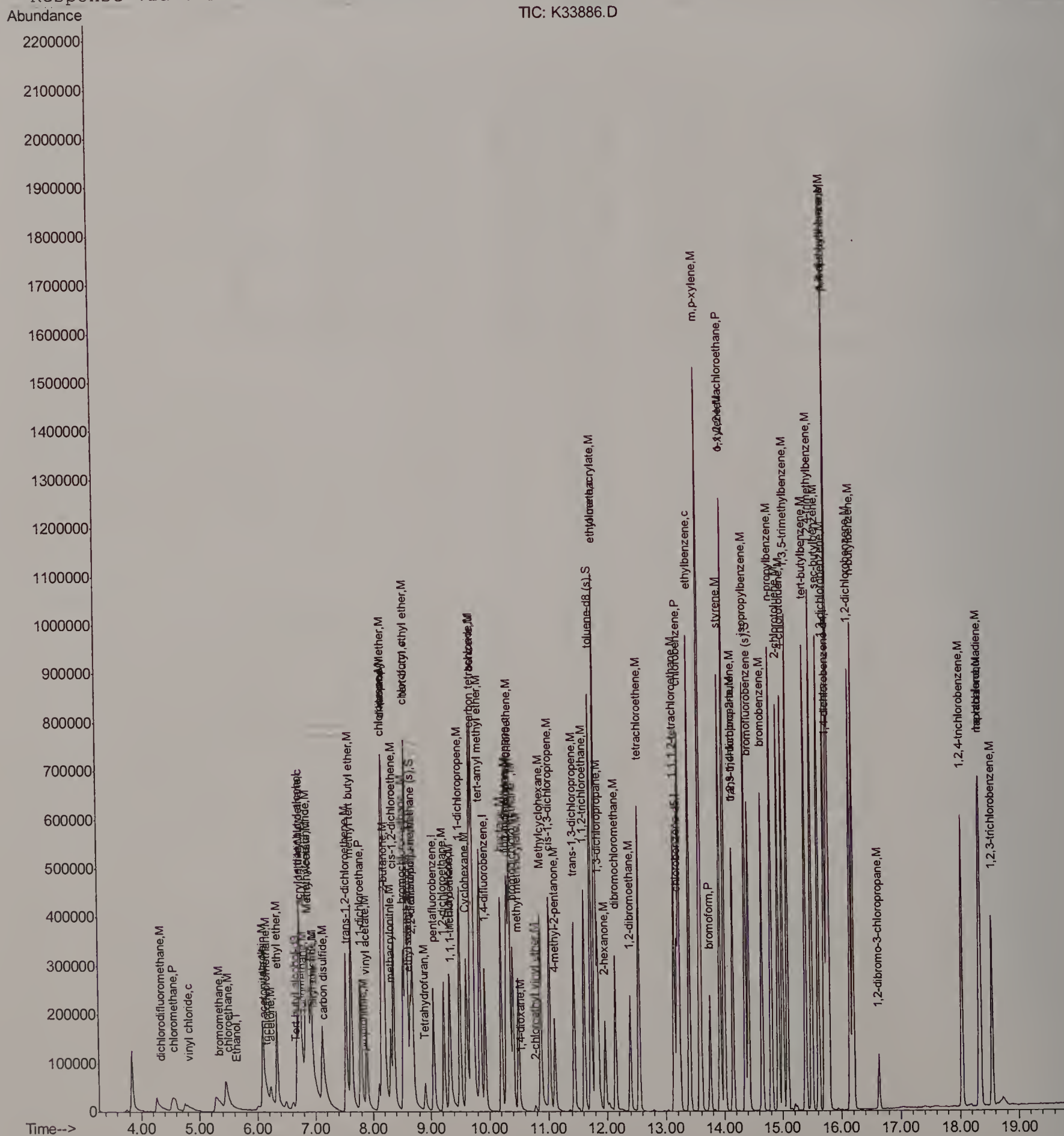
(#) = qualifier out of range (m) = manual integration (+) = signals summed
K33886.D K042409S.M Mon Apr 27 12:32:37 2009 MSK

(QT Reviewed)

Vial: 1
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: K042409S.RES

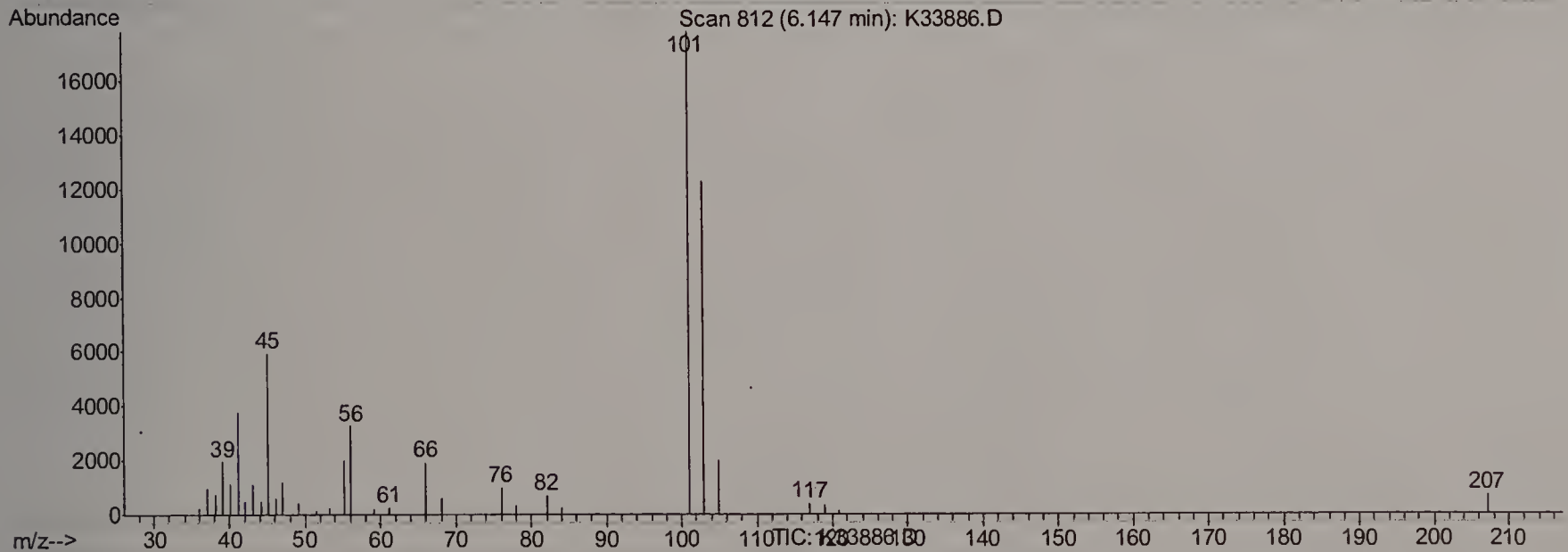
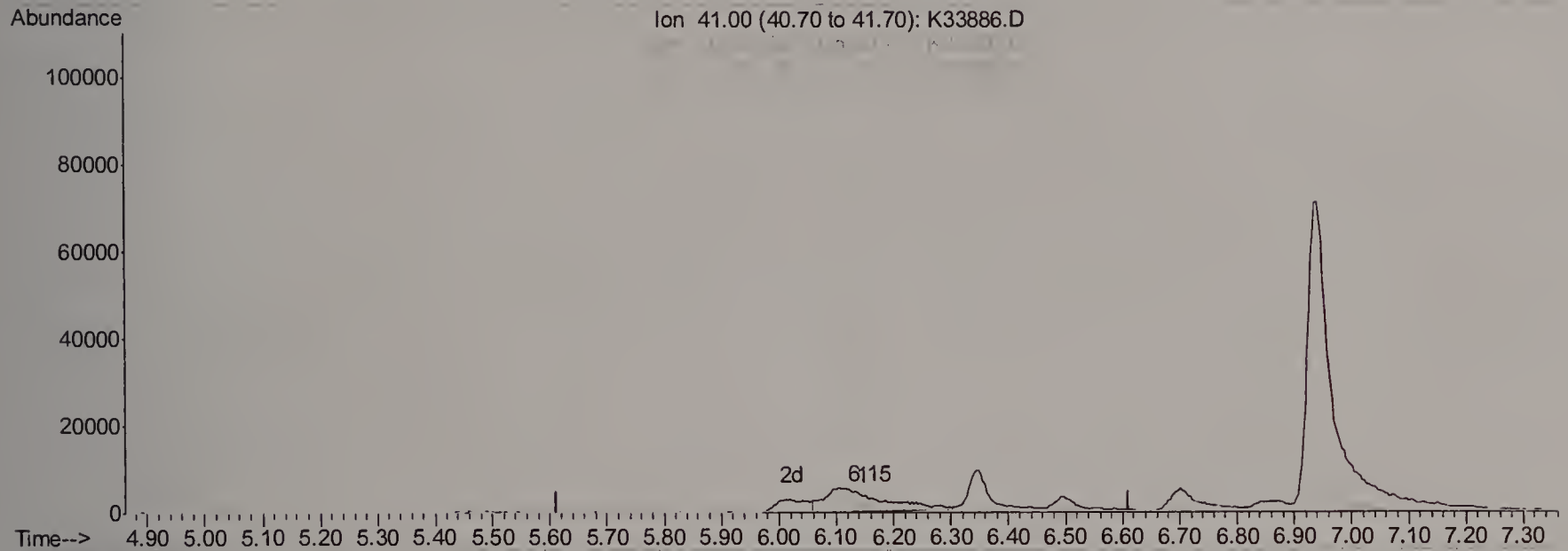
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Method       : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title        : SW-846 Method 8260
Last Update   : Mon Apr 27 09:11:43 2009
Response via  : Initial Calibration
```



Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33886.D Vial: 1
 Acq On : 27 Apr 2009 9:54 am Operator: RobertT
 Sample : cc1192-100 Inst : gcms k
 Misc : ms18104,msk1193,10,,100,10,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P
 Quant Time: Apr 27 12:31 2009 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
 Title : SW-846 Method 8260
 Last Update : Mon Apr 27 09:11:43 2009
 Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.15min 64.30ug/kg

response 37767

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	32.46
39.00	58.00	52.64
0.00	0.00	0.00

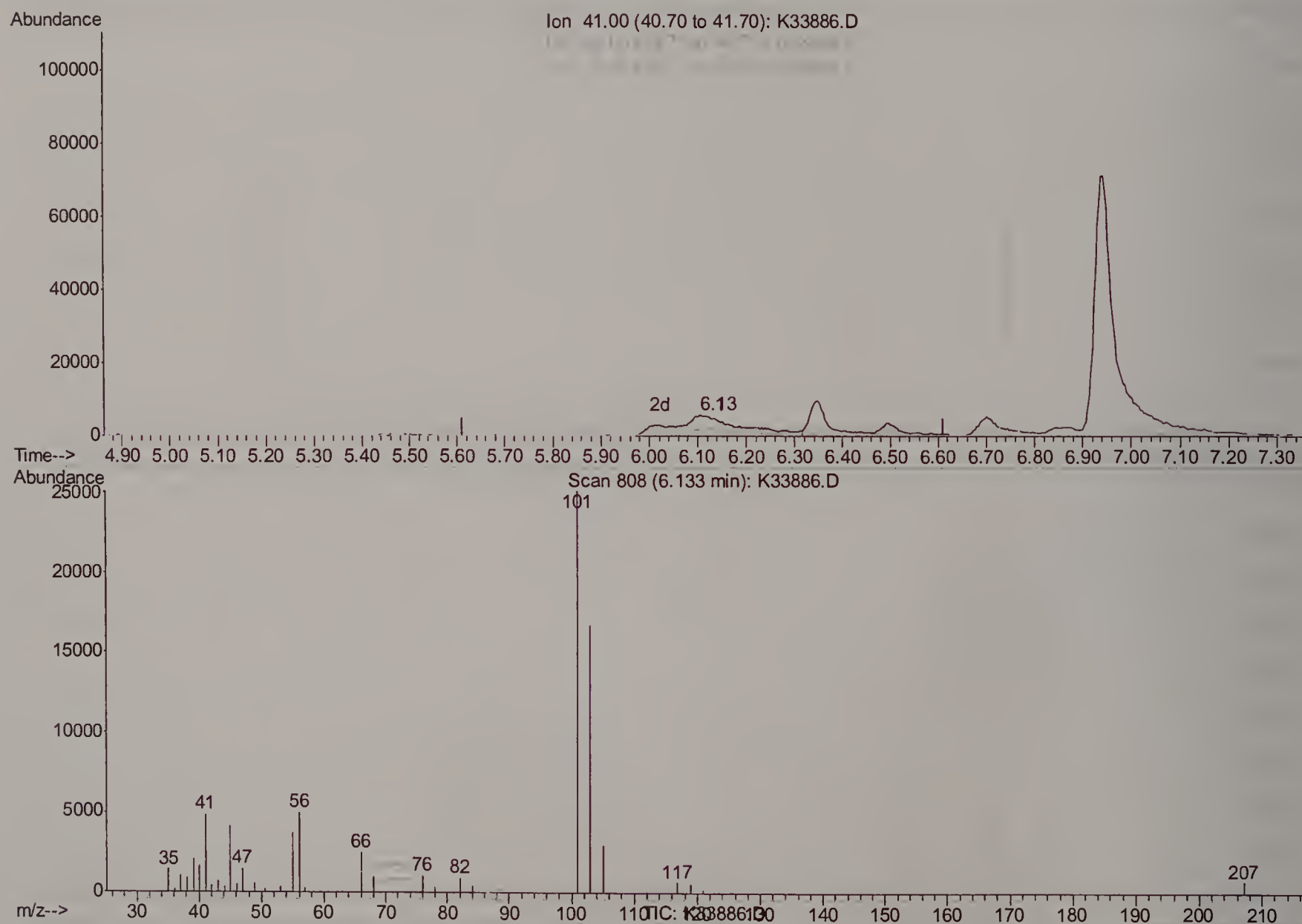
Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\K33886.D
Acq On : 27 Apr 2009 9:54 am
Sample : cc1192-100
Misc : ms18104,msk1193,10,,100,10,1
MS Integration Params: RTEINT.P
Quant Time: Apr 27 12:31 2009

Vial: 1
Operator: RobertT
Inst : gcms k
Multiplr: 1.00

Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\K042409S.M (RTE Integrator)
Title : SW-846 Method 8260
Last Update : Mon Apr 27 09:11:43 2009
Response via : Multiple Level Calibration



(11) acetonitrile (M)

6.13min 95.13ug/kg m

response 55553

Ion	Exp%	Act%
41.00	100	100
40.00	39.00	34.57
39.00	58.00	42.45
0.00	0.00	0.00

Standards Data

Lot #	Description	Conc
KMS 7087	K 8260 So. / IS	250ug/ml
7017	Soil SS	200ug/ml
7051	Cal STD	↓
7072	BS STD	↓
7099	BFB	25ug/ml

Daily Saved File

Tune file 1: K33837.D
Tune file 2: _____
Initial Cal: K0466095.M
ID File: MSK1178
ICAL Verified: K33851.D
Sequence verified: 4/27/09

Date: 4/24/09

Batch ID: MSK1192

Analysts BT

Signature: *A. Popian*

*Note: If sample matrix is soil - method SW846 5035 used for preparation. SW846 5030 is purge and trap method for soil and water.

Data File	Sample ID	Bot No.	Work Group	Test	ALS #	*MTX	Samp Amt.	% SOL	Dil. Fact.	pH	Comments
K33837.D	BFB	N/A	N/A	BFB	1	S	5ml	N/A	50x	N/A	10:51am
38	CC1178-100			8260	1						low, BFB
39	↓				1						low, BFB
40	↓				1						low, Try #3
41	CC1178-100				1						
42	blk				1						
43	IC1192-25				2						
44	5				3						
45	2				4						
46	0.5				5						
47	400				6						
48	200				7						
49	100				8						
50	50				9						
51	IC1192-50				10						
52	BSD				11						
53	CC1192-100				12						
54	blk				13						
55	mb	↓	↓		14						
56	m82031-1	4	MS18104		15				5,000x		
57	ms	4			16				↓		
58	msd	4			17				↓		
59	m82272-1	2			18				50x		*RR 200x
60	2	2			19				↓		
61	3	2			20				↓		
62	4	1			21				↓		
63	m81937-1	1	↓		22	OI			5,000x		
64	blk	N/A	N/A		23	S			50x		

MTX = Matrix: Designate W for water, S for soil, O for oil.

Sample amount is reported in grams (wet) for soil and oil, mls for water.

MS001-04 Date: 12/02/08

Review: *AK 4/27/09*

1

VOLATILE ORGANICS BY GC/MS ANALYSIS LOG

Standards Data

Lot #	Description	Conc
MS7099	BFB	25ug/ml
7087	K824050.1 ±5	250ug/ml
7017	Soil SS	200ug/ml
7051	Cal STD	
7072	BS STD	

Daily Saved File

Tune file 1: K33885.D
Tune file 2: _____
Initial Cal: K0424095.M
ID File: MSK1192
ICAL Verified: K33886.D
Sequence verified: 4/28/09

Date: 4/27/09

Batch ID: MSK1193

Analysts BT

Signature: *A. Pappas*

*Note: If sample matrix is soil - method SW846 5035 used for preparation. SW846 5030 is purge and trap method for soil and water.

Data File	Sample ID	Bot No.	Work Group	Test	ALS #	*MTX	Samp Amt.	% SOL	Dil. Fact.	pH	Comments
K33885.D	BFB	N/A	N/A	BFB	1	S	5ml	N/A	50x	N/A	9:40am
86	CC1192-100			8260	1						
87	BS				2						
88	BSD				3						
89	blk				4						
90	mb				5						
91	m88241-12	2	MS18113		6				25x		
92	m82272-1	2	MS18104		7				200x		
93	m82031-2	5	MS18113		8				25x		
94	3	3			9				50x		
95	5	5			10				2500x		
96	6	5			11				1000x		
97	7	3			12				200x		
98	m82293-15	1			13				25x		
99	m82053-2	4			14						
K33900.D	11	4			15						
1	m82136-1	2			16				500x		
2	ms	2			17						
3	msd	2			18						
4	blk	N/A	N/A		19				50x		
5	5	2	MS18113		20				25x		
6	9	2			21						
7	11	2			22				500x		
8	16	2			23						
9	17	2			24						
10	21	2			25						
11	22	2			26				100x		
12	23	1			27				25x		9:13pm
13	24	N/A	N/A		28				50x		
14	25				29						
15	26				30						

MTX = Matrix: Designate W for water, S for soil, O for oil.

Sample amount is reported in grams (wet) for soil and oil, mls for water.

MS001-04 Date: 12/02/08

Review: *Jan 4/28/09*

3



General Chemistry

QC Data Summaries

7

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Page 1 of 1

Job Number: M82272
Account: GEI GEI Consultants, Inc.
Project: GEI Tufts Street Somerville MA

Sample: M82272-1 **Analyzed:** 24-APR-09 by MS **Method:** SM21 2540 B MOD.
ClientID: 045163-CB19SED

Wet Weight (Total)	26.596	g
Tare Weight	18.491	g
Dry Weight (Total)	24.649	g
Solids, Percent	76	%

Sample: M82272-2 **Analyzed:** 24-APR-09 by MS **Method:** SM21 2540 B MOD.
ClientID: 045163-CB20SED

Wet Weight (Total)	26.596	g
Tare Weight	18.491	g
Dry Weight (Total)	24.649	g
Solids, Percent	76	%

Sample: M82272-3 **Analyzed:** 24-APR-09 by MS **Method:** SM21 2540 B MOD.
ClientID: 045163-CB33SED

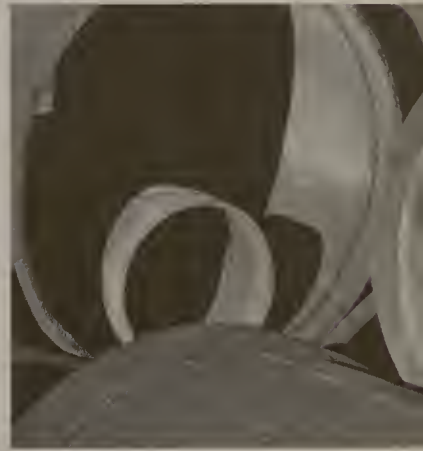
Wet Weight (Total)	26.596	g
Tare Weight	18.491	g
Dry Weight (Total)	24.649	g
Solids, Percent	76	%

Sample: M82272-4 **Analyzed:** 24-APR-09 by MS **Method:** SM21 2540 B MOD.
ClientID: 045163-CB34SED

Wet Weight (Total)	26.596	g
Tare Weight	18.491	g
Dry Weight (Total)	24.649	g
Solids, Percent	76	%



Geotechnical
Environmental
Water Resources
Ecological



RTN 3-28231
IRA Completion Report, Method 3 Risk Characterization,
and Class B-1 RAO Statement
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
UniFirst Corporation
October 15, 2009

Appendix D

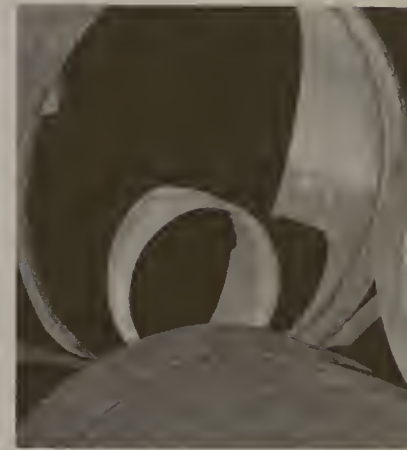
Catch Basin Cleaning Manifests

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number			
	M V 9 7 8 6 5 8 8 8 8 8	1	800 223-8865	002223425 FLE			
5. Generator's Name and Mailing Address		Generator's Site Address (if different than mailing address)					
UniFirst 68 Jonspn Road Wilmington MA 01887		roadway Washington Street Somerville MA 02143					
Generator's Phone: 9 7 8 6 5 8 - 8 8 8 8		U.S. EPA ID Number					
6. Transporter 1 Company Name		MAR 000502138					
7. Transporter 2 Company Name		U.S. EPA ID Number					
8. Designated Facility Name and Site Address		U.S. EPA ID Number					
General Chemical Corporation 133-138 Leland Street Frammingham MA 01702 Facility's Phone: 508 872-5000		M A D 0 1 9 3 7 1 0 7 9					
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
		No.	Type				
X	1. NA3082, Hazardous waste, liquid, n.o.s. 9. PGIII		DM		G	D039	
	2.		DM				
	3.						
	4.						
14. Special Handling Instructions and Additional Information							
TMC PROJECT #1009-299				NDG		I0483	
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offeror's Printed/Typed Name				Signature		Month Day Year	
Dawn Kelley				Dawn Kelly		15 11 09	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____							
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name				Signature		Month Day Year	
Transporter 2 Printed/Typed Name				Signature		Month Day Year	
18. Discrepancy							
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
Manifest Reference Number: _____							
18b. Alternate Facility (or Generator) U.S. EPA ID Number _____							
Facility's Phone: _____							
18c. Signature of Alternate Facility (or Generator) Month Day Year _____							
19. Hazardous Waste Report Management Method Codes (I.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1.		2.		3.		4.	
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name				Signature		Month Day Year	

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number							
	M V 9 7 8 6 5 8 8 8 8 8	1	800 223-8865	002223426 FLE							
	5. Generator's Name and Mailing Address		Generator's Site Address (if different than mailing address)								
	UniFirst 68 Jonspin Road Wilmington MA 01887		roadway Washington Street Somerville MA 02143								
	Generator's Phone: 9 7 8 6 5 8 - 8 8 8 8										
6. Transporter 1 Company Name				U.S. EPA ID Number							
TMC Services, Inc.				M A R 0 0 0 5 0 2 1 3 8							
7. Transporter 2 Company Name				U.S. EPA ID Number							
8. Designated Facility Name and Site Address				U.S. EPA ID Number							
General Chemical Corporation 133-138 Leland Street Framingham MA 01702											
Facility's Phone: 508 872-5000				M A D 0 1 9 3 7 1 0 7 9							
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes					
		No.	Type								
		X	RQ NA3077, Hazardous waste, solid, n.o.s. 9, PGIII (RQ: D039)					0 0 1	TT	Y	D039
2.											
3.											
4.											
14. Special Handling Instructions and Additional Information											
TMC PROJECT #1009-299 NDG I0486											
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.											
Generator's/Offor's Printed/Typed Name		Signature		Month Day Year							
Dawn Keller		Dawn Keller		15 11 09							
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:											
17. Transporter Acknowledgment of Receipt of Materials											
Transporter 1 Printed/Typed Name		Signature		Month Day Year							
Transporter 2 Printed/Typed Name		Signature		Month Day Year							
18. Discrepancy											
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection											
Manifest Reference Number:											
18b. Alternate Facility (or Generator) U.S. EPA ID Number											
Facility's Phone:											
18c. Signature of Alternate Facility (or Generator) Month Day Year											
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)											
1.		2.		3.		4.					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a											
Printed/Typed Name		Signature		Month Day Year							



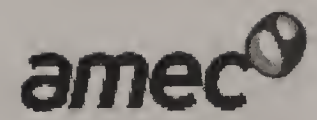
Geotechnical
Environmental
Water Resources
Ecological



RTN 3-28231
IRA Completion Report, Method 3 Risk Characterization,
and Class B-1 RAO Statement
MBTA Storm Drain – Washington Street
Somerville, Massachusetts
UniFirst Corporation
October 15, 2009

Appendix E

AMEC Method 3 Risk Characterization



Method 3 Risk Characterization

MBTA Storm Drain - Washington Street
Somerville, Massachusetts
MADEP Release Tracking Number 3-28231

Prepared for:

UniFirst Corporation
68 Jonspin Road
Wilmington, MA

Prepared by:

AMEC Earth & Environmental
2 Robbins Road
Westford, Massachusetts

October 2009

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Attachment A	Risk Calculations
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1.0 INTRODUCTION

On behalf of UniFirst Corporation (UniFirst), AMEC Earth & Environmental, Inc. (AMEC) has prepared this Method 3 Risk Characterization for Release Tracking Number (RTN) 3-28231, the Storm Drain Site. The purpose of this Risk Characterization was to evaluate potential risk of harm to health, safety, public welfare, and the environment posed by the presence of chlorinated volatile organic compounds (VOCs) detected in a portion of the Massachusetts Bay Transportation Authority (MBTA) storm drain system in Somerville, Massachusetts. This report is included as an appendix to the Immediate Response Action (IRA) Completion Report and Response Action Outcome (RAO) Statement (the Report), and all figures referenced herein are included in the Report.

The Risk Characterization was conducted in accordance with 310 CMR 40.0900 of the Massachusetts Contingency Plan (MCP) (MADEP, 2008a), the Massachusetts Department of Environmental Protection's (MADEP) Guidance for Disposal Site Risk Characterization - In Support of the MCP (MADEP, 1995), and current risk assessment practice in Massachusetts.

1.1 Disposal Site Description

Chlorinated VOC, particularly tetrachloroethylene (PCE), were detected in the MBTA storm drain during site investigations associated with the 50 Tufts Street Site (RTN 3-23246). The portions of the MBTA storm drain included in the Storm Drain Site are depicted on Fig. 1. The Storm Drain Site consists of a portion of the MBTA storm drain system including storm drains in the vicinity of the 50 Tufts Street Site (Fig. 2), passing through the Massachusetts Bay Commuter Rail (MBCR) Commuter Rail Maintenance Yard, its oil water separator (OWS) and ultimately discharging to the Miller's River in Cambridge, MA. The Storm Drain Site also includes the catch basins (U6-CB19, U6-CB20, U6-CB33 and U6-CB34) associated with sampling location U6, located near the railroad overpass on Washington Street in Somerville, Massachusetts (Figs. 5 and 6). The Millers River is a tributary of the Charles River on the border of Cambridge and Charlestown, Massachusetts.

Chlorinated VOC, particularly PCE, were measured in the storm drain which collects water from a section of the railroad right of way (ROW) that passes to the south of the 50 Tufts Street property. PCE was also measured in the stormwater catch basins in Washington Street. The catch basins not only collect storm water, but also groundwater from the 50 Tufts Street Site which infiltrates into the basins. The stormwater collected in the ROW storm drain combines with the stormwater and groundwater in the catch basins (U6) and are pumped via a pump station (U4) to a higher elevation (U5) that flows by gravity through the rest of the system, including the OWS (U10) to the outfall on the Millers River (U12) (Figs. 5 and 6). Sampling locations and test results for storm drains and catch basins sampled by GEI are shown on Fig. 5

1.2 Approach

A Method 3 approach to risk characterization was selected for the Storm Drain Site. As specified in the MCP (310 CMR 40.0942(3)), a Method 3 Risk Characterization is acceptable for any MCP disposal Site. The Method 3 approach includes an evaluation of potential risk of harm to human health, the environment, safety, and public welfare.

The Method 3 Human Health Risk Characterization approach involved four steps. The first step, Hazard Identification, involved identification of the compounds of potential concern (COPC) detected at the Storm Drain Site and any adverse carcinogenic or non-carcinogenic effects associated with the COPCs. The second step, Dose-Response Assessment, described the quantitative relationship between the magnitude of exposure for each COPC (dose) and the resulting adverse health effects (response). The third step, Exposure Assessment, involved identification of potential human receptors, based on characteristics of the property and the surrounding area. Subsequently, the magnitude and frequency of receptors' potential exposure to COPCs was quantified. The fourth step, Risk Characterization, combined the information from the Exposure Assessment with the information from the Dose-Response Assessment to derive quantitative estimates of the likelihood for adverse health effects. These potential risks were estimated for each receptor for each potential exposure pathway identified in the Exposure Assessment. The risks from each exposure pathway were summed to obtain an estimate of total risk for each receptor. Details on these steps of the human health assessment, as well as risk characterization of safety, public welfare, and the environment are provided in the remainder of this report.

2.0 HAZARD IDENTIFICATION

2.1 Data Sets

Samples of storm drain water and solids within the Storm Drain Site were evaluated to determine a representative data set to be evaluated in this Risk Characterization. Section 3.4 of the Report describes the data collected from the Storm Drain Site.

2.1.1 Storm Drain Water

GEI collected storm drain water samples on March 18, 2008, March 21, 2008, April 2, 2008, April 3, 2008, October 10, 2008, and November 14, 2008. Storm drain water samples were collected from the following locations within the storm drain site; U2, U4, U5, U6, and U10. GEI also collected storm drain water samples from the following locations outside of the Storm Drain Site to evaluate other potential sources of impacted water flowing to the Millers River: U1, U9, U11, U13, U14, and U15 (Fig. 5 and Table 1).

Water samples considered in this risk characterization are those associated with the Storm Drain Site: U6 (including catch basins U6-CB19, U6-CB33, and U6-CB34), the MBTA pump station (U4), storm drain manhole location U5, and samples collected from the outflow pipe of the oil/water separator (U10). Locations U4, U5, and U10 are located downstream of U6, along the same storm drain line. As summarized in the Report, the water samples were analyzed for the selected chlorinated VOCs by EPA Method 8260B.

With the exception of U2, water samples collected from storm drain locations other than U6, U4, U5, and U10 are outside of the Storm Drain Site. Although U2 is within the Storm Drain Site, the PCE in the water sample likely originates upstream of the 50 Tufts Street Site. Therefore, these water samples were not considered quantitatively in this Risk Characterization.

The storm drain water data considered in this Risk Characterization are tabulated in Table RC-1.

2.1.2 Storm Drain Solids

Solids data considered in this Risk Characterization consist of the solids samples collected on April 22, 2009 within the four catch basins on Washington Street beneath the MBTA train bridge (location U6). The data were collected by GEI during IRA assessment activities conducted to evaluate potential groundwater infiltration. As summarized in the Report, the solids samples were analyzed for selected chlorinated VOCs by EPA Method 8260B. Solids data considered in this Risk Characterization are tabulated in Table RC-2.

2.2 Selection of Compounds of Potential Concern

Each compound detected in at least one water or solids sample was considered to be a compound of potential concern (COPC) and was retained in this Risk Characterization. A list of water and/or solids COPCs is presented below:

Dichloroethane,1,1-	Tetrachloroethylene (PCE)
Dichloroethane,1,2-	Trichloroethane,1,1,1- (TCA)
Dichloroethylene, cis-1,2-	Trichloroethylene (TCE)
Dichloroethylene, trans-1,2-	Vinyl chloride
Dichloroethylene,1,1-	

3.0 DOSE-RESPONSE ASSESSMENT

The purpose of the Dose-Response Assessment is to identify the relationship between the magnitude of COPCs to which receptors may be exposed (dose) and the likelihood of an adverse health effect (response). Both noncarcinogenic (*i.e.*, threshold) and carcinogenic (*i.e.*,

non-threshold) health effects were considered in the dose-response assessment. The information provided in the Dose-Response Assessment was combined with the results of the Exposure Assessment (Section 4.0) to provide an estimate of potential health risk.

Dose-response information used in this risk assessment was selected to be consistent with recent MADEP publications (MADEP, 2009). A summary of the toxicity values used in this Risk Characterization is listed in Table RC-3.

3.1 Noncarcinogenic Dose-Response

Compounds with known or potential noncarcinogenic effects were assumed to have a dose below which no adverse effect occurs, or conversely, above which an effect may be seen. In laboratory experiments, this dose is known as the "No Observed Adverse Effect Level" (NOAEL). The lowest dose at which an adverse effect is seen is called the "Lowest Observed Adverse Effect Level" (LOAEL). By applying uncertainty factors to the NOAEL or the LOAEL, the U.S. EPA developed Reference Doses (RfDs) and Reference Concentrations (RfCs) for chronic and, in some cases, subchronic, exposures to compounds with potential noncarcinogenic effects (EPA, 2009).

Uncertainty factors account for uncertainties associated with the dose-response data, such as the appropriateness of using an animal study to derive a human dose-response value, and the potential for especially sensitive subpopulations to exist, which EPA assumes may not be adequately represented by the laboratory test animals. For compounds with potential noncarcinogenic effects, the RfD or RfC provides reasonable certainty that, if the specified exposure dose is below the threshold, then no noncarcinogenic health effects are expected to occur. RfDs are expressed in terms of milligrams of compound per kilogram of body weight per day (mg/kg-day) and are used to evaluate estimated oral and dermal exposures. RfCs are expressed in terms of milligrams of compound per cubic meter of air (mg/m³) and are used to evaluate estimated inhalation exposures in a specific exposure context (continuous exposure for a chronic period of time). For most compounds, MADEP (2009) adopts toxicity values developed by the U.S. EPA. Table RC-3 summarizes the toxicity information for the COPCs evaluated here by the inhalation and oral / dermal exposure routes.

In this Risk Characterization, subchronic toxicity values were used to evaluate potential exposures to short-term receptors, including the utility worker. Chronic values were used to evaluate exposures to potential long-term receptors, including the hypothetical trespasser.

3.2 Carcinogenic Dose-Response

The U.S. EPA assumes for regulatory risk assessment that no threshold dose exists. In other words, U.S. EPA assumes that a finite level of risk may be associated with any dose above

zero. In March 2005, U.S. EPA issued new cancer guidelines (EPA, 2005), the purpose of which is to recommend principles and procedures to guide U.S. EPA scientists in assessing the cancer risks from chemicals or other agents in the environment when deriving toxicity values. U.S. EPA uses a two-part system for characterizing the extent to which the available data support the hypothesis that an agent causes cancer in humans.

U.S. EPA's first step in evaluating a potential carcinogen is to assign a weight-of-evidence (WOE) classification. Under U. S. EPA's previous cancer guidelines released in 1986, the WOE was described by categories "Group A" through "Group E", with Group A category reserved for known human carcinogens, while Group E category was the other end of the spectrum, representing compounds/agents with evidence of non-carcinogenicity. In the U.S. EPA's more recent approach for carcinogen risk assessment (EPA, 2005), all scientific information is considered in determining whether and under what conditions an agent may cause cancer in humans. Furthermore, the WOE provides a narrative approach to characterize carcinogenicity rather than distinct categories by summarizing the evidence about the likelihood of the compound being a human carcinogen. Five standard WOE descriptors are currently used as part of the narrative, including:

- Carcinogenic to Humans
- Likely to be Carcinogenic to Humans
- Suggestive Evidence of Carcinogenic Potential
- Inadequate Information to Assess Carcinogenic Potential
- Not Likely to be Carcinogenic to Humans

As part of the updated guidance on evaluating potentially carcinogenic compounds, the U.S. EPA emphasizes the value of understanding the biological changes that the agent of interest can cause (e.g., mode of action) and how these changes might lead to the development of cancer. This information, as well as the agent's human carcinogenic potential is to be described in a narrative prepared by U. S. EPA's scientists, summarizing the full range of available evidence and any conditions associated with conclusions about an agent's hazard potential, including which populations or life stages may be particularly susceptible. Since the data for many of the potentially carcinogenic compounds have not been re-evaluated since the initial derivation of the cancer slope factors under the 1986 cancer guidelines, the cancer toxicity information presented in IRIS (U. S. EPA's database of recommended cancer slope factors and reference doses for use in risk assessments) represents cancer toxicity information derived under the 1986 guidelines, supplemented with more recent cancer evaluations conducted for a limited number of compounds under the more recent 2005 guidance.

The second step in the carcinogenicity evaluation process is the calculation of a quantitative estimate of carcinogenic potency. The U.S. EPA has developed computer models that extrapolate the observed responses at high doses used in animal studies to predict responses in humans at the low doses encountered during environmental exposures. The models developed by the U.S. EPA assume no threshold and usually consider animal (and sometimes human) data to estimate carcinogenic potency. Further, the models assume that carcinogenic dose-response is linear at low doses. U.S. EPA refers to this numerical estimate of the dose response factor (or the slope of the line plotted from dose vs. response) as the cancer slope factor (CSF) for oral exposures. For inhalation exposures, the numerical estimate is expressed as either a unit risk (UR) factor or CSF. A CSF is expressed in terms of the inverse of a milligram of agent per kilogram body weight per day $[(\text{mg/kg-day})^{-1}]$ and represents the upper-bound excess lifetime cancer risk estimate that results from a daily exposure to an agent at 1 mg/kg-day. The UR is expressed in terms of the inverse of micrograms per meter cubed $(\text{ug/m}^3)^{-1}$ and represents the upper-bound excess lifetime cancer risk estimated to result from continuous exposure to an agent at a concentration of 1 ug/m^3 in air. For most compounds, MADEP (2009) adopts toxicity information developed by U.S. EPA. Table RC 3 summarizes carcinogenic toxicity information for COPCs used in this Risk Characterization.

4.0 EXPOSURE ASSESSMENT

This section identifies the type and magnitude of potential exposures to COPCs at the Storm Drain Site under current and reasonably foreseeable future use. First, potential receptors were identified based on conditions present at the Storm Drain Site and surrounding area. Next, potential routes and pathways of exposure were identified for each receptor based on information about activities that typically occur or could be expected to occur at the Storm Drain Site.

4.1 Identification of Receptors

Consistent with the requirements of the MCP, 310 CMR 40.0923, the exposure assessment considered both current and reasonably foreseeable future Site activities and uses. COPCs were detected within the water and solids within the storm drain system. It is assumed that future use activities are consistent with current use activities, and that a municipal worker /utility worker may access the storm drains/catch basins as part of routine cleaning or repair operations.

The Millers River basin was filled in the 1870's and the current Millers River mainly functions as a stormwater detention basin for multiple manmade outfalls. The Millers River cannot be accessed by public roadways, and GEI personnel were unable to obtain access to the Millers River from the MBTA or MBCR properties. GEI personnel reported that a security guard is

present at the Bunker Hill Community College to restrict access to the portions of the Millers River that may be potentially accessible via the College property. Despite access restrictions and the unlikely presence of human receptors near the outfall of the storm drain (U12), this Risk Characterization assumes that a child-teenage trespasser (age 8-19) may access the outfall of the storm drain and potentially come into contact with stormwater as it is discharged into the Millers River.

4.2 Exposure Areas and Exposure Points

As discussed in Section 2 of this report, storm drain and solids samples collected within the Storm Drain Site were considered in this Risk Characterization. Exposure points for a municipal/utility worker include the following storm drains/catch basins which may be accessed during periodic cleaning or repair operations: U6 (including catch basins U6-CB19, U6-CB20, U6-CB33, and U6-CB34), the MBTA pump station (U4), storm drain manhole location U5, and the OWS separator (U10).

The exposure point for the trespasser receptor is the outlet of the storm drain into the Millers River (U12). As noted in the Report, the OWS operator reported that the outlet (U12) of the OWS into the Millers River is submerged. Access to the Millers River was not granted to GEI and GEI was unable to collect samples from the discharge outlet (U12). Therefore, for the purposes of this Risk Characterization, samples collected from the outflow pipe of the OWS (U10) in the MBTA railyard were assumed to be representative of both the OWS and the Millers River outlet. Location U10 is located approximately 400 feet upstream from the discharge outlet U12.

4.2.1 “Hotspot” Evaluation

The MCP (310 CMR 40.0006) defines a “hotspot” as a discrete area where concentrations are more than 100-fold higher than the surrounding areas, except where the potential for greater exposure to the discrete area than to the surrounding area exists. At these latter sub-areas having greater exposure potential, concentrations more than 10-fold higher than surrounding concentrations might be “hotspots.” At this Site, COPC concentrations in water detected in catch basins U6-19, U6-33, and U6-34 are greater than concentrations detected in other storm drains located downgradient of the U6 catch basins. The average concentrations of some COPCs within the U6 catch basins are greater than 10-fold, but less than 100-fold higher than downstream storm drain locations. Since the potential for exposure to stormwater within the U6 catch basins is equal to or greater than potential exposures in downstream locations, the concentrations do not represent a hot spot. Regardless, exposures to storm drain water within the U6 catch basins in fact were separately evaluated, so it would make no difference in this evaluation whether or not any were in fact a hotspot.

4.2.2 Quantitative Evaluation of Potential Exposure Pathways

Exposure pathways are the mechanisms by which potential receptors may be exposed to COPCs at the Site. The highest exposed individual in each exposure point was quantitatively evaluated, along with other less exposed potential receptors. The following paragraphs summarize the risk scenarios evaluated quantitatively in this Risk Characterization.

A future municipal/utility worker was evaluated quantitatively in this Risk Characterization. Incidental direct contact and incidental ingestion of water in the storm drains and catch basin solids exposures were considered for the utility worker. Potential exposures to VOC during periodic cleaning and maintenance activities were also considered for the municipal/utility worker.

Incidental direct contact and incidental ingestion of water in the storm drains at the outfall into the Millers River (U12) were also considered for a teen trespasser.

4.2.3 Qualitative Evaluation of Potential Exposures

Receptors with the highest intensities and frequencies of use in each exposure point area were evaluated quantitatively. These assignments would result in a conservative estimate for receptors with less frequent or intense exposures the Storm Drain Site. Where "No Significant Risk" has been demonstrated for the more highly exposed receptor, then "No Significant Risk" has also been demonstrated to less exposed receptors.

4.3 Estimation of Exposure Point Concentrations

The EPC is defined as the compound concentration in a given medium that a potential receptor may encounter at an exposure area. The following sections define EPCs for each exposure medium and area at the Site.

4.3.1 Storm Drain Water

The arithmetic mean of measured water concentrations in the three MBTA storm drain catch basins (U6-CB19, U6-CB33, U6-CB34) located beneath the MBTA train bridge was used to conservatively represent the water EPC of each COPC for the municipal worker/utility scenario. GEI was unable obtain a water sample from the fourth catch basin (U6-CB20) located beneath the MBTA train bridge during the March/April and November 2008 sampling events because it was filled with solids. The arithmetic mean of the measured concentrations was calculated assuming that compounds not detected in a given sample were present at one-half the laboratory reporting limit. The storm drain water EPC consists of two water samples collected from catch basins U6-CB19, U6-CB33, and U6-CB34 during dry conditions (March/April 2008

and October 2008) and one sample collected from each catch basin during wet weather conditions (November 2008).

In the absence of data from the stormwater outfall location (U12), the arithmetic mean of measured water concentrations collected from the outflow pipe of the OWS (U10) in the MBCR railyard was used to represent the EPC of each COPC for the trespasser exposures. Location U10 is located approximately 400 feet upstream from U12. One water sample was collected from U10 during dry conditions (October 2008) and one sample collected during wet weather conditions (November 2008). The storm drain water EPCs are summarized in Table RC-4.

4.3.2 Storm Drain Solids

The average of the solids samples collected on April 22, 2009 within the four catch basins on Washington Street beneath the MBTA train bridge (U6-CB19, U6-CB33, U6-CB34, and U-CB20) was used to represent the solids EPC of each COPC for the utility scenario. The solids EPCs evaluated in this Risk Characterization are summarized in Table RC-4.

4.3.3 Ambient Air

In order to evaluate potential exposures to constituents that may volatilize from the storm drain into ambient air during periodic cleaning and maintenance activities, EPCs for ambient air were predicted. The EPCs for ambient air for the municipal/utility worker exposure scenario were predicted from the water EPCs derived from samples U6-CB19, U6-CB33, U6-CB34, as defined in Sections 4.3.1.

To predict ambient air EPCs from the storm drain water, COPC emissions were first estimated using Equation 10 from *Guideline for Predictive Baseline Emissions Estimation Procedures for Superfund Sites* (EPA, 1995a). This equation calculates the emission rate (E_i) of contaminants from non-aerated pools of contaminants using the following equation:

$$E_i = K_i C_s A$$

where:

E_i	=	Emission rate of component i, g/sec
K_i	=	Overall mass transfer coefficient, cm/sec
C_s	=	Liquid-phase concentration of component i, g/cm ³ (1 mg/L = 1x10 ⁻⁶ g/cm ³)
A	=	Exposed surface area, cm ²

The exposed area (A) was assumed to be equal to the standard dimensions of a catch basin, 16 ft² (14,400 cm²). A more detailed discussion of EPA's Equation 10 is provided in Attachment B to this report.

The emission estimates calculated from EPA Equation 10 were then used to predict ambient air concentrations using the area source algorithm in U.S. EPA's SCREEN3 dispersion model (EPA, 1995b). EPA's SCREEN3 is a screening-level model designed to provide conservative estimates of ambient air concentrations emitted by a source by using a default set of meteorological conditions for a fixed set of downwind locations (i.e., receptors). SCREEN3 identifies the point of maximum impact between 1 meter and 100 meters from the source and the corresponding one-hour concentration. Refer to the EPA's air dispersion website (http://epa.gov/scram001/dispersion_screening.htm) for a more detailed discussion of EPA's SCREEN3 dispersion model.

For purposes of this risk characterization, the one-hour concentration generated by SCREEN3 was converted to an 8-hour estimate (ambient air EPC) by applying an EPA-approved time-scaling factor of 0.7 (EPA, 1992). The modeled ambient air EPCs evaluated in this Risk Characterization are summarized in Table RC-4. It was assumed that the site-specific source height was 0.1 meters and the receptor height was 1 meter. Default SCREEN3 urban dispersion coefficients and worst-case meteorological factors were assumed to estimate the EPCs in Table RC-4.

4.4 Quantification of Potential Exposure

This section describes the equations and assumptions used to evaluate potential exposures of identified receptors to COPCs detected at the Storm Drain Site. The equations used to evaluate potential human health exposures in this Risk Characterization were consistent with equations presented by MADEP (1995, 2008b).

The Average Daily Dose (ADD) was calculated to estimate a receptor's potential daily oral and dermal intake from exposure to compounds with potential noncarcinogenic effects. The Average Daily Exposure (ADE) was calculated to estimate a receptor's potential daily inhalation intake from exposure to compounds with potential noncarcinogenic effects. According to MADEP (1995) and U.S. EPA (1989b), the exposure dose should be calculated by averaging over the period of time for which the receptor was assumed to be exposed. Subsequently, the ADD or ADE for each compound via each route of exposure was compared to the noncarcinogenic RfD or RfC (respectively) for that compound in order to estimate the potential noncarcinogenic hazard index due to exposure to that compound via that route of exposure.

For compounds with potential carcinogenic effects, the lifetime average daily dose (LADD) or lifetime average daily exposure (LADE) was calculated to estimate potential exposures over the course of a lifetime (70 years). Subsequently, the LADD or LADE for each compound via each

route of exposure was multiplied by the CSF or URF (respectively) for that compound to estimate the potential carcinogenic risk due to exposure to that compound via that route of exposure. Potential exposure assumptions for the utility and the trespasser receptors are summarized in Table RC-5.

The equations used to estimate average daily exposures and doses are presented below. The spreadsheets used to calculate ADD, ADE, LADD and LADE from these equations and parameter values are contained in Attachment A to this report. Chemical-specific factors required to implement the equations (i.e., relative absorption factors) are also presented in Attachment A.

4.4.1 Storm Drain Water

Incidental water exposure was assumed to occur during municipal/utility work on the Storm Drain Site catch basins and during trespasser exposures in the vicinity of the storm drain water discharge to the Millers River. The ADDs and LADDs for water ingestion and dermal contact were calculated as follows:

$$\text{ADD or LADD} = \frac{\text{CW} \times [(\text{IR} \times \text{FI} \times \text{RAFo}) + (\text{SA} \times \text{PC} \times \text{RAFd})] \times \text{ED} \times \text{EF} \times \text{EP} \times \text{CF1} \times \text{CF2}}{\text{BW} \times \text{AP}}$$

where:

ADD	=	Average Daily Dose Due to Ingestion and Dermal Contact (mg/kg-day)
LADD	=	Lifetime Average Daily Dose Due to Ingestion and Dermal Contact (mg/kg-day)
CW	=	Compound Concentration in Water (mg/L)
IR	=	Incidental Water Ingestion Rate (ml/hr)
FI	=	Fraction Ingested from Site (unitless)
RAFo	=	Relative Absorption Factor (Oral-Water) (unitless)
SA	=	Skin Surface Area Exposed to water (cm ² /hr)
PC	=	Skin Permeability (cm/hr) (these are compound-specific; summarized in Attachment A)
RAFd	=	Relative Absorption Factor (Dermal-Water) (unitless)
ED	=	Exposure Duration (hr/day)
EF	=	Exposure Frequency (days/year)
EP	=	Exposure Period (years)
CF1	=	Conversion Factor (ml/cm ³)
CF2	=	Conversion Factor (L/ml)
BW	=	Body Weight (kg)
AP	=	Averaging Period (EP * 365 days/yr for noncancer; 70 yr * 365 days/yr for cancer)

To estimate municipal/utility worker exposures, it was assumed that catch basin cleaning activities occur one time each quarter of the year (4 times per year) for 5 years. To estimate

trespasser exposures, it was assumed that a child-teenager comes into contact with the storm drain water at the Millers River discharge once every weekend for 6 months of the year (24 days per year) for 11 years.

4.4.2 Storm Drain Solids

Exposure to storm drain solids was assumed to occur via incidental ingestion and dermal contact during periodic utility/maintenance work. ADDs and LADDs for solids ingestion were calculated as follows:

$$\text{ADD}_{\text{ing}} \text{ or } \text{LADD}_{\text{ing}} = \frac{C_{\text{soil}} \times \text{IR}_{\text{soil}} \times \text{FI} \times \text{RAF}_{\text{os}} \times \text{CF} \times \text{EF} \times \text{EP}}{\text{AT} \times \text{BW}}$$

where:

ADD _{ing}	=	Average Daily Dose Due to Ingestion (mg/kg-day)
LADD _{ing}	=	Lifetime Average Daily Dose Due to Ingestion (mg/kg/day)
C _{soil}	=	Compound Concentration in Solids (mg/kg)
IR _{soil}	=	Solids Ingestion Rate (mg/day)
FI	=	Fraction of Solids Ingested From the Site (unitless)
RAF _{os}	=	Relative Absorption Factor (Oral-Soil) (unitless)
CF	=	Conversion Factor (10 ⁻⁶ kg/mg)
EF	=	Exposure Frequency (days/year)
EP	=	Exposure Period (years)
BW	=	Body Weight (kg)
AT	=	Averaging Time (EP x 365 days/yr, ADD; 70yr x 365 days/yr, LADD)

ADDs and LADDs for dermal absorption were calculated as follows:

$$\text{ADD}_{\text{der}} \text{ or } \text{LADD}_{\text{der}} = \frac{C_{\text{soil}} \times \text{SA} \times \text{AF} \times \text{RAF}_{\text{ds}} \times \text{CF} \times \text{EF} \times \text{EP}}{\text{AT} \times \text{BW}}$$

where:

ADD _{der}	=	Average Daily Dose Due to Dermal Contact (mg/kg-day)
LADD _{der}	=	Lifetime Average Daily Dose Due to Dermal Contact (mg/kg/day)
C _{soil}	=	Compound Concentration in Solids (mg/kg)
SA	=	Skin Surface Area Exposed (cm ² /day)
AF	=	Solids to Skin Adherence Factor (mg/cm ²)
RAF _{ds}	=	Relative Absorption Factor (Dermal-Solids) (unitless)
CF	=	Conversion Factor (10 ⁻⁶ kg/mg)
EF	=	Exposure Frequency (days/year)
EP	=	Exposure Period (years)
BW	=	Body Weight (kg)
AT	=	Averaging Time (EP x 365 days/yr, ADD; 70yr x 365 days/yr, LADD)

The calculation of a LADD as opposed to an ADD is simply a matter of averaging time (AT).

4.4.3 Inhalation of Ambient Air

Inhalation of ambient air was also evaluated for the municipal/utility worker receptor. MADEP (1995) requires the use of URFs and RfCs for evaluating this exposure pathway. These values represent a level of risk or hazard associated with continuous exposure (i.e., 24 hours per day for a chronic duration or a lifetime). Therefore, these toxicity factors must be used with an ADE or LADE that accounts for non-continuous exposure to the exposure point concentration:

$$ADE = EPC_{air} \times AF$$

where:

ADE	=	Average Daily Exposure (ug/m ³)
EPC _{air}	=	Exposure Point Concentration of COPC in air (ug/m ³)
AF	=	Adjustment Factor (unitless)

$$LADE = EPC_{air} \times AF$$

where:

LADE	=	Lifetime Average Daily Exposure (ug/m ³)
EPC _{air}	=	Exposure Point Concentration of COPC in air (ug/m ³)
AF	=	Adjustment Factor (unitless)

and where:

$$AF = \frac{ED \times EF \times EP}{24 \frac{hr}{d} \times 365 \frac{d}{y} \times AP}$$

where:

ED	=	Exposure Duration (hr/day)
EF	=	Exposure Frequency (days/yr)
EP	=	Exposure Period (years)
AP	=	Averaging Period (years)

The AF for estimating the ADE is computed using the averaging period for non-cancer exposure assessment, while the AF for estimating the LADE uses the averaging period for cancer

exposure assessment. Exposure durations and frequencies are equal to values used by MADEP in developing Method 1 standards (MADEP, 2009).

4.5 Relative Absorption Factors (RAFs)

The premise of calculating risk or hazard was that potential human exposure dose was similar to the administered dose or applied dose in a laboratory experiment. The animal-derived cancer slope factors (CSFs) and reference doses (RfDs) used in quantitative risk assessment were based on applied doses in most cases. However, the efficiency of COPC absorption via a particular route and from a particular matrix (e.g., soil, water) at the Site may differ from the absorption efficiency for the exposure route and matrix used in the experimental study that serves as the basis for the CSF or RfD. RAFs are used to adjust the exposure dose based on these two absorption efficiencies. As recommended by MADEP (1995) and U.S. EPA (1989b), RAFs for Site-related COPCs were derived and used in the calculation of human exposure doses.

RAFs used in this Risk Characterization are shown in Attachment A. The RAFs are equal to values used by MADEP in developing Method 1 standards (MADEP, 2009).

5.0 RISK CHARACTERIZATION

Risk characterization is the step in the risk assessment process that combines the results of the exposure assessment and the dose-response assessment for each COPC in order to estimate the potential for noncarcinogenic and carcinogenic human health effects from exposure to that compound. This section summarizes the results of the Risk Characterization for each receptor evaluated in this risk assessment. Table RC-6 summarizes the total noncarcinogenic and carcinogenic risks calculated for the Storm Drain Site. The risk calculations, which provide results for each receptor, exposure pathway and COPC, are contained in Attachment A.

5.1 Noncarcinogenic Risk Characterization

The potential for exposures to COPCs identified at the subject Site to result in adverse noncarcinogenic health effects was estimated for each receptor by comparing the ADD or ADE for each compound (derived in Section 4) with the RfD or RfC (respectively) for that compound. The resulting ratio is known as the Hazard Quotient (HQ) for that compound. The HQ was calculated using the following formulae:

$$HQ = \frac{ADD}{RfD} \text{ or } HQ = \frac{ADE}{RfC}$$

where:

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HQ = Hazard Quotient (unitless)
 ADD = Average Daily Dose (mg/kg-day)
 RfD = Reference Dose (mg/kg-day)
 ADE = Average Daily Exposure (mg/m³)
 RfC = Reference Concentration (mg/m³)

When a Hazard Quotient for a given compound does not exceed 1, the RfD or RfC has not been exceeded, and no adverse noncarcinogenic health effects are expected to occur. The HQs for each compound were summed to yield the Hazard Index (HI) for that pathway. A total Hazard Index was then calculated for each receptor by summing the pathway-specific HIs.

As shown in Table RC-6, the total HIs for the evaluated scenarios are at or below MADEP's target HI of 1. These results indicated that a condition of "No Significant Risk" exists for non-cancer effects associated with current and future exposures at the Site.

5.2 Carcinogenic Risk Characterization

The purpose of carcinogenic risk characterization is to estimate the likelihood, over and above the background cancer rate, that a receptor will develop cancer in his or her lifetime as a result of Site-related exposures to COPCs in various environmental media. This likelihood is a function of the dose of a compound and the CSF or URF for that compound. The relationship between the Excess Lifetime Cancer Risk (ELCR) and the estimated LADD or LADE of a compound may be expressed as:

$$\text{ELCR} = 1 - e^{-\text{CSF} \times \text{LADD}} \quad \text{or} \quad \text{ELCR} = 1 - e^{-\text{URF} \times \text{LADE}}$$

where:

ELCR = Excess Lifetime Cancer Risk (unitless)
 CSF = Cancer Slope Factor (1/(mg/kg-day))
 LADD = Lifetime Average Daily Dose (mg/kg-day)
 URF = Unit Risk Factor (1/(ug/m³))
 LADE = Lifetime Average Daily Exposure ug/m³)

When the product of the CSF and the LADD or the product of the URF and the LADE is much greater than 1, the ELCR approaches 1 (*i.e.*, 100% probability). When the product is less than 0.01 (1×10^{-2}), the equation can be closely approximated by:

$$\text{ELCR} = \text{CSF} \times \text{LADD} \quad \text{or} \quad \text{ELCR} = \text{URF} \times \text{LADE}$$

The product of the equation is unitless, and provides an estimate of the potential carcinogenic risk associated with a receptor's exposure to that compound via that pathway. ELCRs are calculated for each potentially carcinogenic compound. For each receptor, the ELCRs for each pathway by which the receptor is assumed to be exposed is calculated by summing the potential risks derived for each compound. A Total Excess Lifetime Cancer Risk for each receptor is then calculated by summing the pathway-specific ELCRs.

Table RC-6 presents the total ELCRs calculated for the current and future receptors. As shown in Table RC-6, the total ELCR for the evaluated scenarios are at or below MADEP's target risk of 1×10^{-5} . These results indicated that a condition of "No Significant Risk" exists for carcinogenic effects associated with current and future exposure at the Site.

5.3 Applicable or Suitably Analogous Public Health Standards

The MCP (310 CMR 40.0993(3)) requires an evaluation of Applicable and Suitably Analogous Standards (ASAS) in addition to quantitative risk assessment. Since the storm drain water at the Site generally discharges into the Millers River, approximately 400 feet downgradient of the OWS, the storm drain water data used in this risk characterization were compared to the Massachusetts Surface Water Quality Standards. As shown in Table RC-7, in every instance, concentrations detected at the OWS are below the applicable Massachusetts Surface Water Quality Standards by multiple orders of magnitude.

5.4 Risk to Safety and Public Welfare

In accordance with the MCP (310 CMR 40.0994), the risk of harm to safety and public welfare was evaluated. No overt situations posing a threat of physical harm or bodily injury exist, nor have persistent odors associated with the release been reported. As such, the Site poses no threat of physical harm or bodily injury, and presents no dangerous or nuisance conditions.

Based on the overall results, a condition of "No Significant Risk" can be demonstrated for the Site under the safety and public welfare criteria.

5.5 Risk to the Environment

Risk to the environment was evaluated in this Risk Characterization in accordance with the MCP (310 CMR 40.0995) and MADEP guidance for Method 3 Environmental Risk Characterization (MADEP, 1996). The MCP provides for two stages of environmental risk characterization:

- Stage I, which is used to identify those situations which require further evaluation; and
- Stage II, which is a detailed evaluation of those environmental exposure pathways identified in Stage I.

As discussed in the Report, the MBTA storm drain catch basins (U6) are designed to collect stormwater from Washington Street, this flow combines with the stormwater collected by the storm drain in the railroad ROW. GEI assessment activities indicate that groundwater with detectable levels of COPCs from the Tufts Street Site is infiltrating into these catch basins and being pumped into the downgradient storm drain system. Although the direct storm drain discharge location to the Millers River is inaccessible, the detection of COPCs downgradient of the U6 catch basins indicates that there is a potential for COPCs to reach the Millers River. As such, there is evidence of potential exposure to the Millers River as defined in 310 CMR 40.0995(3)(a)(1)(d). There is no evidence of exposure to terrestrial habitats associated with the COPCs detected in the storm drain system.

The Millers River is a tributary of the Charles River and mainly functions as a stormwater detention basin for multiple water discharges. No Areas of Critical Environmental Concern (ACECs) or Habitats of Rare Wetlands Wildlife are located at the Site or within 500 feet of the Site. According to the "Charles River Watershed 1997/1998 Water Quality Assessment Report" (Fiorentino et al, 2000), the Millers River is "akin to a drainage ditch". The report references habitat assessment activities conducted by GeoEnvironmental, Inc. (GZA) on behalf of the MBTA. The GZA assessment was not available for review; however, the Fiorentino Report indicates that no fish were observed in the Millers River during the GZA electro-shock fishing effort. The Fiorentino Report also indicates that solids samples collected within the Millers River revealed elevated levels of heavy metals, polychlorinated biphenyls (PCBs), total petroleum hydrocarbons, and polycyclic aromatic hydrocarbons. Available laboratory results of surface water samples collected by the U.S. EPA in June 2006 and the MBTA in February 2008 (Fig. 7 of the Report) indicate detectable levels of chlorinated VOCs in the Millers River.

Surface water samples were not collected as part of this assessment. Concentrations present within the outfall of the OWS (location U10) are a conservative representation of potential Storm Drain Site-related inputs into the Millers River. Table RC-7 compares maximum COPC concentrations detected at location U10 to available Massachusetts Surface Water Quality Standards (MassDEP, 2009). As shown in Table RC-7, the following five COPCs have been detected in sample location U10:

Dichloroethane, 1,1-
Dichloroethylene, cis-1,2-
Tetrachloroethylene (PCE)
Trichloroethane, 1,1,1- (TCA)
Trichloroethylene (TCE)

The maximum concentrations detected at the OWS are below the applicable Massachusetts Surface Water Quality Standards. It is also important to note that available U.S. EPA and MBTA surface water data collected from the Millers River in June 2006 and February 2008 and analyzed for these COPCs are also below the Massachusetts Surface Water Quality Standards (Fig.7). These data were only used qualitatively for comparison purposes; these data were not used as part of the risk calculations presented here.

Since concentrations of chlorinated VOCs in downgradient storm drain water samples are below the Massachusetts Lowest Ecologically Based Standard by multiple orders of magnitude, the potential exposures to the environment do not represent "readily apparent harm" as defined in 310 CMR 40.0995(3)(b). Likewise, concentrations of all COPCs in surface water can be ruled out as a "potentially significant exposure" in the Stage I environmental risk characterization. Therefore, a Stage II Environmental Risk Characterization is not required to determine whether a condition of "No Significant Risk of harm" exists.

6.0 UNCERTAINTY ANALYSIS

Within any of the four steps of the human health risk assessment process, assumptions must be made due to a lack of absolute scientific knowledge. Some of the assumptions are supported by considerable scientific evidence, while others have less support. Every assumption introduces some degree of uncertainty into the risk assessment process. Conservative assumptions are made throughout the risk assessment to ensure that the health of local residents and the environment are protected. Therefore, when all of the assumptions are combined, it is much more likely that actual risks, if any, are over-estimated rather than under-estimated.

The assumptions that introduce the greatest amount of uncertainty in this risk assessment are discussed in this section. They are discussed in general terms, because for most of the assumptions there is not enough quantitative information to assign a numerical value that can be factored into the calculation of risk.

6.1 Hazard Identification

During the Hazard Identification step, compounds are selected for inclusion in the quantitative Risk Characterization. All detected site-related compounds in Site stormwater and solids samples collected by GEI were considered COPCs and evaluated in the Risk Characterization. Therefore, unless compounds have been overlooked in the MCP protocols utilized for the sampling and analytical methodologies conducted at the property, it is unlikely that exposures to these media related to the release are under-estimated by the hazard identification step.

Storm drain water samples were collected in November 2007 and February 2008 by the MBTA from the outflow pipe of the OWS (U10). The reported MBTA storm drain water data for location U10 are less than an order of magnitude higher than the EPCs used in the trespasser scenario presented in this Risk Characterization. As such, if the MBTA storm drain water data for location U10 were considered, the resulting potential risks for the trespasser would still be below the MassDEP acceptable limits and the conclusions of this Risk Characterization would remain unchanged.

6.2 Dose-Response Assessment

Dose-response values are usually based on limited toxicological data. For this reason, a margin of safety is built into estimates of both carcinogenic and noncarcinogenic risk, and actual risks are likely to be lower than those estimated.

Human dose-response values are often extrapolated, or conservatively estimated, using the results of animal studies. Extrapolation from animals to humans introduces a great deal of uncertainty in the risk assessment because in most instances, it is not known how differently a human may react to the chemical compared to the animal species used to test the compound. The procedures used to extrapolate from animals to humans involve conservative assumptions and incorporate several uncertainty factors (explicit factors for species extrapolation, and possible sensitive populations in the case of the RfD) that are more likely to over-estimate than under-estimate the no-effect dose in humans.

6.3 Exposure Assessment

During the exposure assessment, average daily doses of COPCs to which receptors are potentially exposed are calculated, which involves assumptions about how often exposure occurs. Such assumptions include location, accessibility, and use of an area. With this in mind, the receptor, or type of person who may potentially be exposed, and the location of exposure, were both defined for this Risk Characterization. The locations where certain activities were assumed to take place have been purposely selected because chemical concentrations and frequency of exposure are expected to be high (i.e., use of the maximally affected areas). However, actual frequencies of exposure are likely to be much lower than assumed. For example, a municipal/utility worker performing routine storm drain cleaning activities would likely clean several storm drain locations within one day, where this Risk Characterization assumes the full 8 hour day would be spent cleaning the Storm Drain Site catch basins U6. Additionally, access limitations and aesthetics beneath Interstate 93 would likely preclude a trespasser from routinely visiting the Millers River storm drain outfall, where this Risk Characterization assumes regular weekend visiting to this location during the warmer 6 months of the year. In these cases, the person's potential exposure would be reduced, and the health risks discussed here would be overestimated.

6.4 Risk Characterization

The risk of adverse human health effects depends on estimated levels of exposure and on dose-response relationships. Once exposure to and risk from each of the selected compounds is calculated, the total risk posed by exposure to soil is determined by combining the health risk contributed by each compound. Where COPCs do not interact, do not affect the same target organ or do not have the same mechanism of action, summing the risks for multiple COPCs results in an over-estimate of risk posed by the Site. However, in order not to understate the risk, it is assumed that the effects of different compounds may be added together. While there does exist the theoretical possibility of greater than additive effects (synergism) among compounds with effects on the same target organ, overall the application of the assumption of additivity is expected to conservatively estimate health risks. In addition, antagonism (less than additive effects) is a well-known phenomenon. The assumption of additivity greatly overestimates risk when any antagonistic effects are occurring.

7.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A Method 3 Risk Characterization of harm to human health, public welfare, safety, and the environment for RTN 3-28231 was completed in accordance with the requirements of 310 CMR 40.0000 Subpart I of the MCP. Data from IRA assessment activities, as well as information from other sources (e.g., MassDEP and U.S. EPA guidance documents) were used to conduct the Risk Characterization.

The human health Risk Characterization evaluated potential risk to current and future receptors assumed to be exposed to Site-related constituents detected in storm drains. The results of the human health Risk Characterization demonstrate that the cancer and non-cancer risks associated with the evaluated exposure scenarios are below the MassDEP acceptable limits. Therefore, a condition of "No Significant Risk" exists with respect to potential human health.

The results of the evaluation of risk of harm to safety and public welfare indicated that no unsafe or nuisance conditions exist at the Site. Separate phase material at a thickness greater than 1/2 inch has not been observed at the Site. Therefore, a condition of "No Significant Risk" of harm to safety and public welfare can be demonstrated for the Site.

The Stage 1 Environmental Risk Characterization concluded that there is evidence of potential exposure to the Millers River as defined in 310 CMR 40.0995(3)(a)(1)(d). Since potential concentrations of chlorinated VOCs in stormwater are multiple orders of magnitude below Massachusetts Surface Water Standards, the potential environmental exposure does not represent "readily apparent harm" and will not result in potentially significant exposure. Therefore, the Site poses "No Significant Risk" with respect to terrestrial and aquatic exposures.

Collectively, these results lead to the conclusion that the Site achieves a condition of "No Significant Risk" under the assumption of unrestricted Site use, and no Activity and Use Limitation is required to maintain the condition of "No Significant Risk."

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Tables

Table RC-1
Storm Drain Water Samples Considered in Risk
Characterization
50 Tufts Street
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Sample Location:		Site Catch Basins										Pump Station		Storm Drain Manhole		Outfall pipe of OWS			
Utility ID:		U6-19 (CB19)			U6-33 (CB33)			U6-34 (CB34)			U4		U5		U10				
Sample Name: Sample Date:		CB 19 3/18/08	U6-19-DRY 10/10/08	U619-WET 11/14/08	CB 33 3/18/08	U6-33-DRY 10/10/08	U633-WET 11/14/08	CB 34 4/3/08	U6-34-DRY 10/10/08	U634-WET 11/14/08	U4-DRY 10/10/08	U4-WET 11/14/08	U5-DRY 10/10/08	U5-WET 11/14/08	U10-DRY 10/10/08	U10-WET 11/14/08	U20-WET (Dup.) 11/14/08		
Analyte	Method	Units																	
Volatile Organic Compounds (VOCs)	8260	µg/l																	
Dichloroethane,1,1-		59.5	87.4	62.2	16.8	9.7	15.1	1.6	1.6	2.2	11.8	10.7	1.1	2.4	0.64 J	< 1.0	< 1.0		
Dichloroethane,1,2-		50.1	< 1.0	< 5.0	21.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Dichloroethylene, cis-1,2-		1030	874	713	182	117	176	10.8	13.7	17.7	248	262	2.1	27.4	5.5	6.5	6.4		
Dichloroethylene, trans-1,2-		23.5	7.1	< 5.0	2.4	2.2	2.7	< 1.0	< 1.0	< 1.0	3.3	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Dichloroethylene,1,1-		100	17.0	5.4	40.3	7.7	7.7	< 1.0	2.5	1.3	8.5	< 5.0	6.7	5.1	< 1.0	< 1.0	< 1.0		
Tetrachloroethylene (PCE)		5170	3680	1430	2090	2170	1060	406	477	388	1790	1170	503	267	27.4	25.2	24.6		
Trichloroethane,1,1,- (TCA)		491	319	161	381	135	169	39.8	32.0	38.4	121	103	179	206	5.4	6.3	6.2		
Trichloroethylene (TCE)		254	303	234	252	138	187	25.3	25.3	23.2	165	132	104	125	4.9	5.7	5.5		
Vinyl chloride		40.1	260	153	13.7	13.7	17.3	< 1.0	0.98 J	1.1	9.1	7.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		

General Notes:

- Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- µg/l = micrograms per liter.
- "<" = The analyte was not detected at a concentration above the specified reporting limit.
- OWS = MBTA's Oil Water Separator.

Qualifying Notes:

J The reported result is below the laboratory reporting limit and is estimated.

Table RC-2
Storm Drain Solids Data Considered in Risk Characterization
 50 Tufts Street
 Somerville, Massachusetts

Utility ID:			U6-19 (CB19)	U6-20 (CB20)	U6-33 (CB33)	U6-34 (CB34)
Sample Name:			CB19SED 4/22/09	CB20SED 4/22/09	U633-WET 4/22/09	CB 34 4/22/09
Sample Date:						
Analyte	Method	Units				
Volatile Organic Compounds (VOCs)	8260	mg/kg				
Dichloroethylene, cis-1,2-			0.0863 J	< 0.1	0.256	< 0.12
Tetrachloroethylene (PCE)			27	< 0.1	2.79	0.20
Trichloroethane, 1,1,1- (TCA)			0.169	< 0.1	0.104 J	< 0.12
Trichloroethylene (TCE)			0.221	< 0.1	0.375	< 0.12

General Notes:

- Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- µg/l = micrograms per liter.
- "<" = The analyte was not detected at a concentration above the specified reporting limit.

Qualifying Notes:

J The reported result is below the laboratory reporting limit and is estimated.

Table RC-3
Toxicity Values
 50 Tufts Street
 Somerville, Massachusetts

Compound	Reference Dose Oral Chronic Value (mg/kg-day)	Reference Dose Oral Subchronic Value (mg/kg-day)	Reference Concentration Inhalation Chronic Value (mg/m ³)	Reference Concentration Inhalation Subchronic Value (mg/m ³)	Cancer Slope Factor Oral Value (mg/kg-day) ⁻¹	Unit Risk Inhalation Value (ug/m ³) ⁻¹	Cancer Slope Factor Inhalation Value (mg/kg-day) ⁻¹
Dichloroethane, 1,1-	0.1	1	0.5	5	NA	NA	NA
Dichloroethene, cis-1,2-	0.01	0.1	0.035	0.035	NA	NA	NA
Dichloroethene, 1,1-	0.05	0.05	0.2	0.2	NA	NA	1.2
Tetrachloroethene	0.01	0.1	4.6	4.6	0.051	0.00001	0.035
Trans-1,2-Dichloroethene	0.02	0.2	0.07	0.7	NA	NA	NA
Trichloroethane, 1,1,1-	0.09	0.9	5.2	5.2	NA	NA	NA
Trichloroethene	0.002	0.02	0.18	0.18	0.011	0.0000017	0.00595
Vinyl chloride	0.003	0.003	0.1	0.1	1.4	0.0000088	0.0308

General Notes:

1. Value are based on MassDEP Guidance (MassDEP 2008a) and Revised MassDEP Cancer Unit Risk for Tetrachloroethylene (MassDEP 2008b).

Table RC-4
Exposure Point Concentrations
 50 Tufts Street
 Somerville, Massachusetts

Compound	Medium Receptor	Storm Drain Solids Utility	Storm Drain Water Utility	Storm Drain Ambient Air* Utility	Outfall Storm Water Trespasser Storm Drain OWS
	Location Units	Storm Drain U6 mg/kg	Storm Drain U6 ug/L	Storm Drain U6 ug/m ³	(U10) ug/L
Dichloroethane, 1,1-		ND	2.8E+01	5.0E-02	5.7E-01
Dichloroethene, cis-1,2-		1.2E-01	3.5E+02	7.0E-01	6.0E+00
Dichloroethene, 1,1-		ND	2.0E+01	4.0E-02	ND
Tetrachloroethene		7.5E+00	1.9E+03	2.7E+00	2.6E+01
Trans-1,2-Dichloroethene		ND	4.9E+00	9.0E-03	ND
Trichloroethane, 1,1,1-		9.3E-02	2.0E+02	3.0E-01	5.8E+00
Trichloroethene		1.8E-01	1.6E+02	3.0E-01	5.3E+00
Vinyl chloride		ND	6.2E+01	2.0E-01	ND

General Notes:

1. Analytes detected in at least one sample are reported here.
2. OWS = MBTA's Oil Water Separator.
3. ND = Analyte was not detected.
4. Ambient Air EPCs predicted using EPA Equation 10 (EPA 1995a) and SCREEN3 (EPA, 1995b); see text
5. *Source assumed to be 0.1 meter high and Utility Receptor was 1 meter above source. Refer to Attachments A and B for calculations

Table RC-5
Receptor Exposure Parameters
50 Tufts Street
Somerville, Massachusetts

Medium	Route	Parameter	Units	Child/Teen Trespasser			Utility Worker		
				Value	Source	Comment	Value	Source	Comment
Storm Drain Solids	Ingestion & Dermal Contact	Solids Ingestion Rate	mg/d	NE			100	c	
		Solids Dermal Contact Skin Exposed	cm ² /d	NE			3473	c	Median value for face, hands, forearms, and feet of females
		Solids Dermal Contact Adherence Rate	mg/cm ²	NE			0.29	c	
		Solids Exposure Frequency	d/y	NE			4	b	One Storm Drain Cleaning per
		Solids Exposure Period - Cancer	y	NE			5	a	
		Solids Exposure Period - Non-Cancer	y	NE			5	a	
		Solids Averaging Time - Cancer	d	NE			25550	a	
		Solids Averaging Time - Non-Cancer	d	NE			1825	a	
Storm Drain Water	Ingestion & Dermal Contact	Water Ingestion Rate	L/d	0.05	b		0.01	b	
		Water Exposure Frequency	d/y	24	b	One day a week, 6 Months per	4	b	One Storm Drain Cleaning per
		Water Exposure Period - Cancer	y	11	b	Trespasser 8 yrs to 19 yrs old	5	a	
		Water Exposure Period - Non-Cancer	y	11	b	Trespasser 8 yrs to 19 yrs old	5	a	
		Water Averaging Time - Cancer	d	25550	a		25550	a	
		Water Averaging Time - Non-Cancer	d	4015	a		1825	a	
		Water Dermal Contact Skin Exposed	cm ²			Median value for face, hands, forearms, lower legs, and feet of females			
		Water Dermal Contact Exposure Time	hr/d	4871.9	a		817	c	Median value for hands of females
Storm Drain Air	Inhalation of Volatiles	Outdoor Air Exposure Time - Volatiles	hr/d	2	b		8	a	
		Outdoor Air Exposure Frequency - Volatiles	hr/d	NE			8	a	
		Outdoor Air Exposure Period - Cancer - Volatiles	d/y	NE			4	b	One Storm Drain Cleaning per
		Outdoor Air Exposure Period - Non-Cancer - Volatiles	y	NE			5	a	
		Outdoor Air Averaging Time - Volatiles	y	NE			5	a	
		Outdoor Air Averaging Time - Cancer - Volatiles	d	NE			25550	a	
		Outdoor Air Averaging Time - Non-Cancer - Volatiles	d	NE			1825	a	
		Body Weight	kg	47.5	a	Trespasser 8 yrs to 19 yrs old	58	c	
General									

General Notes:

1. NE - No exposure via this route
2. a - MADEP (2009) or MADEP (1995).
3. b - Professional judgement
4. c - MADEP default value for construction worker

Table RC-6
Summary of Potential Human Health Risks
50 Tufts Street
Somerville, Massachusetts

Receptor	Pathway	Hazard Index	Excess Lifetime Cancer Risk
Municipal/Utility Worker	Ingestion and Dermal Exposure to Storm Water Sediments	3E-06	1E-09
	Ingestion and Dermal Exposure to Storm Water	1E-03	4E-07
	Ambient Air	9E-05	8E-09
	Cumulative Potential Risks	1E-03	4E-07
Trespasser	Ingestion and Dermal Exposure to Storm Water Outfall	2E-03	7E-07
	Cumulative Potential Risks	2E-03	7E-07

Table RC-7
 Comparison to Representative Outfall Sample (U10) to Available Massachusetts
 Surface Water Quality Standards
 50 Tufts Street
 Somerville, Massachusetts

Sample Location:		Outfall pipe of OWS	Massachusetts Surface Water Quality Standards*	Endpoint Type*	Reference for Selected Benchmark*
Utility ID: Sample Name:		U10 Maximum			
Analyte	Units				
Volatile Organic Compounds (VOCs)		µg/l			
Dichloroethane, 1,1-		0.64 J	990	chronic LOEC	Used value for 1,2 DCA
Dichloroethylene, cis-1,2-		6.5	14000	acute LC50/10	Buccafusco et al., 1981
Tetrachloroethylene (PCE)		27.4	1100	chronic LOEC	Ahmad et al., 1984
Trichloroethane, 1,1,1- (TCA)		6.3	900	acute EC10/10	Alexander et al, 1978
Trichloroethylene (TCE)		5.7	190	acute LC50/10	Yoshioka et al, 1986

General Notes:

- Analytes detected in at least one sample at U10 are reported here.
- µg/l = micrograms per liter.
- OWS = MBTA's Oil Water Separator. OWS is 400 feet upgradient from storm drain outfall into Millers River
- * = Massachusetts Surface Water Quality Standards obtained from MCP Numerical Standards Development Spreadsheets (May 2009)

Qualifying Notes:

J The reported result is below the laboratory reporting limit and is estimated.

Method 3 Risk Characterization
MBTA Storm Drain, Somerville, Massachusetts
UniFirst Corporation
October 2009



Attachment A
Risk Calculations

Table A-1
Exposure and Risk Estimates Associated With Storm Drain Sediments
50 Tufts Street, Somerville MA
UniFirst
Municipal/Utility Worker
Storm Drain Sediment - Dermal contact & Incidental Ingestion
Subchronic

Receptor:	Utility Worker	▼
Medium:	Sediment	▼
Exposure Area:	Storm Drains	▼
Depth:	0-6 feet	▼
Duration:	Subchronic	▼

Parameter	Definition	Units	Value	Comment
IRsoil	Sediment Ingestion Rate	mg/d	100	
SA	Sediment Dermal Contact Skin Exposed	cm2/d	3473	
AF	Sediment Dermal Contact Adherence Rate	mg/cm2	0.29	
EF	Sediment Exposure Frequency	d/y	4	
EP	Sediment Exposure Period - Cancer	y	5	
EP	Sediment Exposure Period - Non-Cancer	y	5	
ATc	Sediment Averaging Time - Cancer	d	25550	
ATn	Sediment Averaging Time - Non-Cancer	d	1825	
BW	Body Weight	kg	58	
CF	Conversion Factor	kg/mg	0.000001	

$$ADD_{ing} = \frac{C_{soil} \times CF \times IR_{soil} \times RAF_{os} \times EF \times EP}{AP \times BW}$$
$$ADD_{der} = \frac{C_{soil} \times CF \times SA \times AF \times RAF_{dh} \times EF \times EP}{AP \times BW}$$
$$HI_{ing} = \frac{ADD_{ing}}{RfD}$$
$$HI_{der} = \frac{ADD_{der}}{RfD}$$
$$HI = HI_{ing} + HI_{der}$$
$$Risk_{ing} = ADD_{ing} \times CSF$$
$$Risk_{der} = ADD_{der} \times CSF$$
$$Risk = Risk_{ing} + Risk_{der}$$

Compound	EPC		Incidental Ingestion				Dermal Contact				Total					
	Sediment (mg/kg)	RfD (mg/kg-d)	CSF 1/(mg/kg-d)	RAFosc	ADDing-c mg/kg-d	Risking	RAFosc	ADDing-nc mg/kg-d	Hling	RAFdsc	ADDder-c mg/kg-d	Riskder	RAFdscnc mg/kg-d	Hlder	Risk (Sediment)	HI (Sediment)
Dichloroethane, 1,1- Dichloroethene, cis-1,2- Dichloroethene, 1,1- Tetrachloroethene Trans-1,2-Dichloroethene Trichloroethane, 1,1,1- Trichloroethene Vinyl chloride	NA	1	NA	NC	NA	NA	1.3	NA	NA	NC	NA	NA	NA	NA	NA	NA
	1.2E-01	0.1	NA	NC	NA	NA	1	2E-09	2E-08	NC	NA	NA	2E-09	2E-08	NA	5E-08
	NA	0.05	NA	NC	NA	NA	1	NA	NA	NC	NA	NA	NA	NA	NA	NA
	7.5E+00	0.1	0.051	1	1E-08	5E-10	1	1E-07	1E-06	0.1	1E-08	5E-10	1E-07	1E-06	1E-09	3E-06
	NA	0.2	NA	NC	NA	NA	1	NA	NA	NC	NA	NA	NA	NA	NA	NA
	9.3E-02	0.9	NA	NC	NA	NA	1	2E-09	2E-09	NC	NA	NA	2E-09	2E-09	NA	4E-09
	1.8E-01	0.02	0.011	1	2E-10	3E-12	1	3E-09	2E-07	0.1	2E-10	3E-12	3E-09	2E-07	5E-12	3E-07
	NA	0.003	1.4	1.53	NA	NA	1	NA	NA	0.16	NA	NA	NA	NA	NA	NA
Total					5E-10			2E-06			5E-10		2E-06	1E-09	3E-06	

NA - Not available
NC - Not calculated
ND - Not detected

Table A-2
Exposure and Risk Estimates Associated With Stormwater Contact
50 Tufts Street, Somerville MA
UniFirst
Municipal/Utility Worker
Storm Drain Water - Dermal contact & Incidental Ingestion

Receptor:	Utility Worker	▼
Medium:	Stormwater	▼
Exposure Area:	Storm Drains	▼
Duration:	Subchronic	▼

Parameter	Definition	Units	Value	Comment
IRgww	Storm Water Ingestion Rate	L/d	0.01	
SA	Storm Water Dermal Contact Skin Exposed	cm2	817	
EF	Storm Water Exposure Frequency	d/y	4	
EP	Storm Water Exposure Period - Cancer	y	5	
EP	Storm Water Exposure Period - Non-Cancer	y	5	
ATc	Storm Water Averaging Time - Cancer	d	25550	
ATn	Storm Water Averaging Time - Non-Cancer	d	1825	
ET	Storm Water Dermal Contact Exposure Time	hr/d	8	
BW	Body Weight	kg	58	
CF	Conversion Factor	L/cm3	1.00E-03	

$$ADD_{ing} = \frac{C_{gw} \times IR_{gw} \times RAF_{ing} \times EF \times EP}{AP \times BW}$$
$$ADD_{der} = \frac{C_{gw} \times CF \times SA \times K_p \times ET \times RAF_{der} \times EF \times EP}{AP \times BW}$$
$$HI_{ing} = \frac{ADD_{ing}}{RfD}$$
$$HI_{der} = \frac{ADD_{der}}{RfD}$$
$$HI = HI_{ing} + HI_{der}$$
$$Risk = ADD_{ing} \times CSF$$
$$Risk = ADD_{der} \times CSF$$
$$Risk = Risk_{ing} + Risk_{der}$$

Compound	EPC	RfD (mg/kg-d)	CSF 1/(mg/kg-d)	Incidental Ingestion			Dermal Contact					Total						
	Storm Water (mg/L)			RAFowc	ADDing-c mg/kg-d	Risking	RAFownc	ADDing-nc mg/kg-d	Hling	Kp (cm/hr)	RAFdwc	ADDder-c mg/kg-d	Riskder	RAFdwnc	ADDder-nc mg/kg-d	Hlder	Risk (Storm Water)	HI (Storm Water)
Dichloroethane, 1,1-	2.8E-02	1	NA	NC	NA	NA	1.3	7E-08	7E-08	6.7E-03	NC	NA	NA	1	2E-07	2E-07	NA	3E-07
Dichloroethene, cis-1,2-	3.5E-01	0.1	NA	NC	NA	NA	1	7E-07	7E-06	6.6E-03	NC	NA	NA	1	3E-06	3E-05	NA	3E-05
Dichloroethene, 1,1-	2.0E-02	0.05	NA	NC	NA	NA	1	4E-08	8E-07	4.3E-03	NC	NA	NA	1	1E-07	2E-06	NA	3E-06
Tetrachloroethene	1.9E+00	0.1	0.051	1	3E-07	1E-08	1	4E-06	4E-05	3.3E-02	1	5E-06	3E-07	1	8E-05	8E-04	3E-07	8E-04
Trans-1,2-Dichloroethene	4.9E-03	0.2	NA	NC	NA	NA	1	9E-09	5E-08	1.1E-02	NC	NA	NA	1	7E-08	3E-07	NA	4E-07
Trichloroethane, 1,1,1-	2.0E-01	0.9	NA	NC	NA	NA	1	4E-07	4E-07	1.3E-02	NC	NA	NA	1	3E-06	3E-06	NA	4E-06
Trichloroethene	1.6E-01	0.02	0.011	1	2E-08	2E-10	1	3E-07	2E-05	1.2E-02	1	2E-07	2E-09	1	2E-06	1E-04	2E-09	1E-04
Vinyl chloride	6.2E-02	0.003	1.4	1.53	1E-08	2E-08	1	1E-07	4E-05	8.2E-03	1	5E-08	6E-08	1	6E-07	2E-04	8E-08	3E-04
Total						3E-08			1E-04				3E-07			1E-03	4E-07	1E-03

NA - Not available
NC - Not calculated
ND - Not detected

Table A-3
Exposure and Risk Estimates Associated With Inhalation of Volatile Compounds in Air
50 Tufts Street, Somerville MA
UniFirst
Municipal/Utility Worker
Ambient Air
Volatilization from Stormwater

Receptor:	Utility Worker	▼
Medium of Origin:	Stormwater	▼
Exposure Medium:	Ambient Air	▼
Exposure Area:	Storm Drains	▼
Depth:	Shallow	▼
Duration:	Subchronic	▼

$$C_{air} = \frac{C_{source} \times (VF \text{ or } \alpha)}{SDF}$$

$$ADE_{inh} = \frac{C_{air} \times RAF_i \times ET \times EF \times EP}{24 \text{ hr} / d \times 365 \text{ d} / y \times AT}$$

$$HI_{inh} = \frac{ADE_{inh}}{RfC}$$

$$Risk = ADE_{inh} \times URF \times C$$

Parameter	Definition	Units	Value	Comment
ET	Outdoor Air Exposure Time - Volatiles	hr/d	8	
EF	Outdoor Air Exposure Frequency - Volatiles	d/y	4	
EP	Outdoor Air Exposure Period - Non-Cancer - Volatiles	y	5	
EP	Outdoor Air Exposure Period - Cancer - Volatiles	y	5	
ATc	Outdoor Air Averaging Time - Cancer - Volatiles	d	25550	
ATn	Outdoor Air Averaging Time - Non-Cancer - Volatiles	d	1825	
C	Conversion Factor	ug/mg	1000	

Compound	EPC Predicted Ambient Air* (mg/m3)	RfC (mg/m3)	URF 1/(ug/m3)	RAFic	ADE-c mg/m3	Riskinh	RAFinc	ADE-nc mg/m3	Hlinh	Risk (Ambient Air)	HI (Ambient Air)
Dichloroethane, 1,1-	5.0E-05	5	NA	NC	NA	NA	1	2E-07	4E-08	NA	4E-08
Dichloroethene, cis-1,2-	7.0E-04	0.035	NA	NC	NA	NA	1	3E-06	7E-05	NA	7E-05
Dichloroethene, 1,1-	4.0E-05	0.2	NA	1	NA	NA	1	1E-07	7E-07	NA	7E-07
Tetrachloroethene	2.7E-03	4.6	0.00001	1	7E-07	7E-09	1	1E-05	2E-06	7E-09	2E-06
Trans-1,2-Dichloroethene	9.0E-06	0.7	NA	NC	NA	NA	1	3E-08	5E-08	NA	5E-08
Trichloroethane, 1,1,1-	3.0E-04	5.2	NA	NC	NA	NA	1	1E-06	2E-07	NA	2E-07
Trichloroethene	3.0E-04	0.18	0.0000017	1	8E-08	1E-10	1	1E-06	6E-06	1E-10	6E-06
Vinyl chloride	2.0E-04	0.1	0.0000088	1	5E-08	5E-10	1	7E-07	7E-06	5E-10	7E-06
Total						8E-09			9E-05	8E-09	9E-05

NA - Not available
NC - Not calculated
ND - Not detected

* - Ambient Air EPCs predicted using EPA Equation 10 (EPA 1995a) and SCREEN3 (EPA, 1995b); see report text for additional information

Table A-4
VOC Emissions from an Open Tank of Dewatering Water
50 Tufts Street, Somerville MA
UniFirst
Derivation of Ambient Air EPCs for Utility Worker Scenario

Ei=	Emission Rate
Ki=	Mass Transfer Coefficient
Kil=	Liquid Mass Transfer Coefficient
RT=	Ideal Gas Transfer Coefficient
Kig=	Gas Mass Transfer Coefficient
Cs=	Concentration in Water
MW=	Molecular Weight
A=	Area
Hi=	Henry's Law Coefficient

EQUATIONS

$$Ei= Ki*Cs*A$$

$$Ki= 1/(1/Ki)$$

$$Kil= ((32/MW)^{0.5})*1^{*0.002}$$

$$RT= 8.2e-5*298$$

$$1/Ki= (1/Kil)+(RT/(Hi*Kig))$$

$$Kig= (18/MW)^{0.335}((298/298)^{1.005})^{*0.833}$$

(1 mg/L = 10-6 g/cm3)

CALCULATIONS

	MW	Ki	1/Ki	Cs	A	Kil	1/Kil	RT	Hi	Kig	RT/(Hi*Kig)	Ei	Ei
	g/mol	cm/sec	sec/cm	g/cm3	cm2			atm-m3/mol	atm-m3/mol			g/sec	g/m2/sec
Dichloroethane,1,1-	9.9E+01	1.1E-03	8.9E+02	2.8E-08	1.4E+04	1.1E-03	8.8E+02	2.4E-02	5.6E-03	4.7E-01	9.2E+00	4.6E-07	3.2E-07
Dichloroethene, cis-1,2-	9.7E+01	1.1E-03	8.8E+02	3.5E-07	1.4E+04	1.1E-03	8.7E+02	2.4E-02	4.1E-03	4.7E-01	1.3E+01	5.7E-06	3.9E-06
Dichloroethene,1,1-	9.7E+01	1.1E-03	8.7E+02	2.0E-08	1.4E+04	1.1E-03	8.7E+02	2.4E-02	2.6E-02	4.7E-01	2.0E+00	3.3E-07	2.3E-07
Tetrachloroethene	1.7E+02	8.8E-04	1.1E+03	1.9E-06	1.4E+04	8.8E-04	1.1E+03	2.4E-02	1.8E-02	4.0E-01	3.5E+00	2.4E-05	1.6E-05
Trans-1,2-Dichloroethene	9.7E+01	1.1E-03	8.8E+02	4.9E-09	1.4E+04	1.1E-03	8.7E+02	2.4E-02	9.4E-03	4.7E-01	5.5E+00	8.1E-08	5.6E-08
Trichloroethane,1,1,1-	1.3E+02	9.8E-04	1.0E+03	2.0E-07	1.4E+04	9.8E-04	1.0E+03	2.4E-02	1.7E-02	4.3E-01	3.3E+00	2.8E-06	1.9E-06
Trichloroethene	1.3E+02	9.8E-04	1.0E+03	1.6E-07	1.4E+04	9.9E-04	1.0E+03	2.4E-02	9.9E-03	4.3E-01	5.8E+00	2.3E-06	1.6E-06
Vinyl chloride	6.3E+01	1.4E-03	7.0E+02	6.2E-08	1.4E+04	1.4E-03	7.0E+02	2.4E-02	2.8E-02	5.5E-01	1.6E+00	1.3E-06	8.9E-07

Notes:
Cs value is Stormwater EPC (average of U6 stormwater concentrations)
Emission Rate (Ei) was entered into EPAs SCREEN3 Model (EPA, 1995b) to estimate ambient air EPCs
Calculations based on EPA's Guidelines for Predictive Baseline Emissions Estimation Procedures for Superfund Sites (EPA, 1995a)

Table A-5
Exposure and Risk Estimates Associated With Stormwater Discharge Contact
50 Tufts Street, Somerville MA
UniFirst
Trespasser: Incidental Ingestion and Dermal Contact to Stormwater Discharge

Receptor:	Trespasser Teen
Medium:	Stormwater
Exposure Area:	Discharge to river
Depth:	Shallow
Duration:	Chronic

Parameter	Definition	Units	Value	Comment
IR _{gw}	Stormwater Ingestion Rate	L/d	0.05	
SA	Stormwater Dermal Contact Skin Exposed	cm ²		Median values for face, hands, forearms, lower
EF	Stormwater Exposure Frequency	d/y	4871.9	legs, and feet of females
EP	Stormwater Exposure Period - Cancer	y	24	One day per weekends, 6 Months per year
EP	Stormwater Exposure Period - Non-Cancer	y	70	
ATc	Stormwater Averaging Time - Cancer	d	11	
ATn	Stormwater Averaging Time - Non-Cancer	d	25550	
ET	Stormwater Dermal Contact Exposure Time	hr/d	4015	
BW	Body Weight	kg	2	
CF	Conversion Factor	L/cm ³	45.7	
			1.00E-03	

$$ADD_{ing} = \frac{C_{gw} \times IR_{gw} \times RAF_{gw} \times EF \times EP}{AP \times BW}$$
$$ADD_{der} = \frac{C_{gw} \times CF \times SA \times K_p \times ET \times RAF_{dw} \times EF \times EP}{AP \times BW}$$
$$HI_{ing} = \frac{ADD_{ing}}{RfD}$$
$$HI_{der} = \frac{ADD_{der}}{RfD}$$
$$HI = HI_{ing} + HI_{der}$$
$$Risk = ADD_{ing} \times CSF$$
$$Risk = ADD_{der} \times CSF$$
$$Risk = Risk_{ing} + Risk_{der}$$

	EPC	RfD (mg/kg-d)	CSF 1/(mg/kg-d)	Incidental Ingestion				Dermal Contact				Total							
				Stormwater Discharge to Millers River (mg/L)	RAFowc	ADDing-c mg/kg-d	Risking	RAFownc	ADDing-nc mg/kg-d	Hling	Kp (cm/hr)	RAFdwc	ADDder-c mg/kg-d	Riskder	RAFdwc	ADDder-nc mg/kg-d	Hlder	Risk (Stormwater Discharge)	HI (Stormwater Discharge)
Compound																			
Dichloroethane,1,1- Dichloroethene, cis-1,2- Dichloroethene,1,1- Tetrachloroethene Trans-1,2-Dichloroethene Trichloroethane,1,1,1- Trichloroethene Vinyl chloride	5.7E-04	0.1	NA	NC	NA	NA	NA	1.3	5E-08	5E-07	6.7E-03	NC	NA	NA	1	5E-08	5E-07	NA	1E-06
	6.0E-03	0.01	NA	NC	NA	NA	NA	1	4E-07	4E-05	6.6E-03	NC	NA	NA	1	6E-07	6E-05	NA	1E-04
	ND	0.05	NA	NC	ND	ND	ND	1	ND	ND	4.3E-03	NC	ND	ND	1	ND	ND	ND	ND
	2.6E-02	0.01	0.051	1	2E-06	1E-07	1E-07	1	2E-06	2E-04	3.3E-02	1	1E-05	6E-07	1	1E-05	1E-03	7E-07	1E-03
	ND	0.02	NA	NC	ND	ND	ND	1	ND	ND	1.1E-02	NC	ND	ND	1	ND	ND	ND	ND
	5.8E-03	0.09	NA	NC	NA	NA	NA	1	4E-07	5E-06	1.3E-02	NC	NA	NA	1	1E-06	1E-05	NA	2E-05
	5.3E-03	0.002	0.011	1	4E-07	4E-09	4E-09	1	4E-07	2E-04	1.2E-02	1	9E-07	9E-09	1	9E-07	4E-04	1E-08	6E-04
	ND	0.003	1.4	1.53	ND	ND	ND	1	ND	ND	8.2E-03	1	ND	ND	1	ND	ND	ND	ND
Total						1E-07			4E-04				6E-07		2E-03	2E-03	7E-07	2E-03	

NA - Not available
NC - Not calculated
ND - Not detected

Method 3 Risk Characterization
MBTA Storm Drain, Somerville, Massachusetts
UniFirst Corporation
October 2009



Attachment B
Description of EPA Emission Rate Model (EPA, 1995a)

Attachment B

Emissions from Quiescent Water – Volatile Organic Compounds Emissions

Emissions have been estimated using Equation 10 from *Guideline for Predictive Baseline Emissions Estimation Procedures for Superfund Sites* (U.S. EPA, 1995a). This equation calculates the emission rate of contaminants from the storm water within the catch basins.

$$E_i = K_i C_s A$$

where:

E_i = emission rate of component i, g/sec

K_i = overall mass transfer coefficient, cm/sec

C_s = liquid-phase concentration of component i, g/cm³ (1 mg/L = 1x10⁻⁶ g/cm³)

A = exposed surface area, cm²

The overall mass transfer coefficient was calculated in accordance with Equation 11 of this guidance document:

$$1/K_i = 1/k_{iL} + RT/H_i k_{iG}$$

where:

K_i = overall mass transfer coefficient

k_{iL} = liquid-phase mass transfer coefficient (cm/s)

R = Ideal gas constant, 8.2 atm·m³/mole (°K)

H_i = Henry's Law constant of component i (atm·m³/mole)

k_{iG} = Gas phase mass transfer coefficient

The liquid phase mass transfer coefficient for each chemical was calculated in accordance with Equation 12:

$$k_{iL} = (MW_{O_2}/MW_i)^{0.5} (T/298) (k_{L, O_2})$$

where:

k_{iL} = liquid-phase mass transfer coefficient

MW_{O_2} , MW_i = Molecular weights of oxygen (32) and component i (g/mole)

T = Absolute temperature

k_{L, O_2} = Liquid-phase mass transfer coefficient for oxygen at 25°C, (cm/s)
(default = 0.002 cm/s)

And the gas phase mass transfer coefficient, k_{iG} calculated in accordance with:

$$k_{iG} = (MW_{H_2O}/MW_i)^{.335} (T/298)^{1.005} (k_{iG, H_2O})$$

where:

MW_{H_2O} , MW_i = molecular weights of water (18) and component i respectively, g/mole

T = Absolute temperature

k_{iG, H_2O} = Gas phase mass transfer coefficient for water vapour at 25°C (cm/s)
(default = 0.833cm/s)

**RTN 3-28231 IRA Completion Report, Method 3 Risk
Characterization and Class B-1 RAO Statement**

MBTA Storm Drain - Washington Street, Somerville, MA

GEI Project No. 04516-3

Prepared by:



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